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Foreign Telephone Developments During 1938

CONSTRUCTION WORK and service improvements, based on advances of 1937, carried into 1938. Station gains and increased use of service reported. Toll systems expanded and use extended of carrier current. Installation of automatic equipment going forward in many countries. Expansion plans announced by telephone administrations of several countries

DESPITE UPSET conditions throughout the world during 1938 there was a real improvement and expansion in telephone service in many countries. The important advances in development, construction, traffic and station growth made in 1937 extended to a considerable degree into 1938.

Installation of automatic equipment continued in various countries, toll lines were built connecting cities into toll networks; carrier current systems were extended, and plans were announced by several government administrations covering installation and construction programs for a period of years. Station gains were reported as well as increased use of service.

Information supplied by the International Telephone & Telegraph Corp. from its associated companies in Europe, Australia and the Far East; some obtained from U. S. government and other sources—all furnish details of these various developments.

Communication Systems in General

The successful operation of 12-channel carrier-on-cable systems in Great Britain and Germany, where they have been used on a large scale, has aroused widespread interest, and many administrations are considering such systems in their toll planning.

Echo suppressors for circuits have normally been applied at an intermediate point. The application of carrier systems to cables necessitates the introduction of terminal echo suppressors; the new problems thus created have been actively pursued and new types of suppressors evolved and given final trials.

The progress of television during the year necessitated thorough study of associated transmission systems and much was accomplished in this allied transmission field.

The operation of toll circuit terminal and repeater equipments from power mains without the use of rotating machinery continues to create considerable interest. Improvements in dry rectifiers, electrolytic condensers, voltage regulating devices and emergency automatically-starting prime-mover plant enable high efficiency equipments to be realized.

In the field of transmission testing apparatus, much was accomplished in the provision of simplified equipment with increased frequency ranges and direct reading facilities. Progress also was made with the operation of this type of equipment from alternating current mains.

Progress in Wire Transmission Systems

The four-core coaxial cable network in Great Britain was extended; 218 km were completed in 1938, with an additional 132 km under construction; thus the 550 km route length between London and Newcastle is either completed or under construction. Between London and Birmingham 80 coaxial cable circuits have been in regular service for several months; between Manchester and Leeds, 48 circuits, with terminal and repeater equipment built to a different design, are now undergoing field trials.

The 12-channel multi-conductor system in Great Britain was also extended during the year. The laying of 1,265 km of cable was completed, and a further 1,820 km are under construction. Over 3,760 km of 12-channel cable are now completed or under construction, representing a route length of over 1,880 km.

In addition to underground cable schemes, 12-channel carrier telephone equipment has been successfully applied to submarine cables, linking Great Britain with Holland and with North Ireland.

Paralleling these installations of important new types of cables, normal loaded trunk cables were completed or are under construction in Great Britain with a total length

of 3,713 km as compared with 3,225 km in 1937.

In France, the Paris-Bordeaux coaxial cable has been proceeded with, and work was commenced on the French section of a London-Paris 12-channel cable system. The submarine cable portion of this installation will be essentially of the same design as the land cables.

In Belgium, a 12-channel carrier cable from Antwerp to Roosendaal was one of the 1938 projects and the plan is to extend this cable to Rotterdam, Holland.

In all the foregoing named countries, the 12-channel carrier cables are designed solely for carrier circuit operation; in Rumania, however, a combined 12-channel and normally loaded two-wire cable has been installed.

In Switzerland, a number of cable circuits have been equipped with single-channel carrier telephone systems.

A new cable between Leipzig and Berlin, which was placed in service during March, 1938, is capable of transmitting 30 telephone conversations simultaneously, and also can be utilized to transmit television programs. It is stated that the equipment can be expanded so that ultimately 200 simultaneous telephone calls can be transmitted.

A project is in course of realization for operation on the (Anglo-Belgian) St. Margaret-La Panne submarine cable with one voice frequency and two carrier frequency telephone systems.

In other European countries, progress continued. Long distance telephone networks were extended in accordance with plans which have been followed during the past few years, employing loaded cable systems and carrier on open-wire lines.

The Japanese telephone network now includes several thousand kilometres of non-loaded cable. An accomplishment is the Tokyo to Hoten (Mukden) line extending across the Chosen Strait (270 km) to Chosen (Korea), and thence to Hoten, Manchukuo. The multi-core submarine carrier cable (paper insulated) contains 14 pairs of 2.0 mm. wire divided into two groups of seven pairs each, each group working in opposite directions. Special shielding is provided between each group.

Two of the three repeater stations, equipped with carrier repeaters, are situated on islands in the Strait. Successful results have been achieved and greater use of this type of cable is anticipated for submarine application.

Open-wire carrier equipment of new design was provided for operation in Norway, Finland, Russia, Rumania, Jugoslavia, Czechoslovakia, Bulgaria, Palestine, India, Malaya, South Africa, Australia and New Zealand.

A 12-channel open-wire carrier system which is to be installed in Australia between Sydney and Melbourne (approximately 1,000 km) is attracting widespread attention. The equipment is in process of manufacture. Contracts have also been placed by the telephone administration for a new type of underground telephone cable to be installed between Sydney and Maitland via Newcastle, a distance of 120 miles. Two cables will be laid side by side and will provide five 17-channel circuits between Sydney and Maitland, making possible 85 separate, simultaneous conversations.

Work of the C.C.I.F.

The recommendations passed by the technical commission meetings at Oslo, Norway, in June, 1938, showed that much progress has been made by the C.C.I.F., particularly along the lines of: the European toll switching plan; guiding principles for long distance dialing; and guiding principles for the application of carrier-on-cable systems.

The first and second C.R.'s completed a revision of the "Recommendations" concerning the protection of cables against electrolysis and interference. These new recommendations were submitted to all administrations and operating companies for a postal vote and, if passed, they will go into force as of January 1, 1939.

Ultra-Short Wave Telephony For Commercial Purposes

The use of the ultra-short wave band for commercial purposes is to some extent limited by the general requirement of optical visibility along the propagation path. Nevertheless, there are circumstances in which this band is of great value.

For example, the nine-channel U.S.W. telephone link between Belfast in North Ireland and Stranraer in Scotland has been in continuous service since August, 1937, and the British Post Office and the French P.T.T. have decided to supplement their cross-channel cable service by an 18-channel U.S.W. link initially equipped for nine channels. This equipment will contain voice level control devices and other improvements over the Belfast-Stranraer system and will operate on wave lengths between 3.6 and 4.9 meters.

A direct ultra-short wave service between England and the Scilly Islands was inaugurated in 1938. The successful working of ultra-short wave telephone links has encouraged the British Post Office to prepare a program of extensions. Most of these will serve the Scottish islands.

A six-foot channel U.S.W. link, manufactured by the Nippon Electric Co., Ltd., is being installed between Aomori Prefecture and Hokkaido in Japan, a distance of 75 km. This Aomori-Hokkaido link is of interest since it contains also a broadcast circuit equipped with a compressor and an expandor. An even longer two-channel U.S.W. link has been in operation for some time between England and the Channel Islands, a distance of 136 km.

Denmark's first ultra-short wave radio telephone service was opened October 1, on the Anholt-Grenaa line. All calls to or from the island of Anholt are handled by a special station set up in the Anholt harbor. Anholt is one of the small islands about midway between Denmark and Sweden.

On the initiative of Denmark, the

COMING CONVENTIONS

Minnesota Telephone Association, Hotel St. Paul, St. Paul, January 24, 25 and 26.

Texas Telephone Association, Baker Hotel, Dallas, March 22, 23 and 24.

Oklahoma Telephone Association, Huckins Hotel, Oklahoma City, March 27 and 28.

Kansas Telephone Association, Municipal Auditorium, Junction City, March 30 and 31.

Missouri Telephone Association, Hotel Muehlebach, Kansas City, April 3 and 4.

Nebraska Telephone Association, Lincoln Hotel, Lincoln, April 11 and 12.

Iowa Independent Telephone Association, Fort Des Moines Hotel, Des Moines, April 18, 19 and 20.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, April 25, 26 and 27.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 10 and 11.

New York State Telephone Association, Hotel Syracuse, Syracuse, May 23, 24, 25 and 26.

The Illinois Telephone Association, Pere-Marquette Hotel, Peoria, June 7 and 8.

postmaster generals of Scandinavia are planning extensive expansion of the telephone services between the countries. Original schemes based on the construction of new submadine cables have been discarded and a series of special experiments is being carried out with the object of substituting radio links for cables. It is calculated that if the new scheme is carried out it will be possible to reduce the rates for calls by 50 per cent without the remunerativeness of the service being affected.

It is also planned to erect a number of small ultra-short-wave stations in Denmark with a view to extending telephone facilities to small islands, the connection of which to the existing telephone system has hitherto not been possible on account of the high cost of telephone cables.

In addition to its use in fixed services, such as in the examples just quoted, the ultra-short wave band is now being extensively used for mobile telephone services, such as police systems. The outstanding application of ultra-short waves, however, is in the field of aviation communication and aids to navigation rather than to general commercial radio link working.

Station Gains of Operating Companies of I. T. & T.

The telephone operating companies of the International Telephone & Telegraph Corp. report intensive telephone growth in their territories, particularly in South America. These companies gained more stations in 1938 than in any other year in their history, the total net gain approximating 72,000 stations. The previous high total occurred in 1929 when the gain was just over 70,000.

The largest contributor to this record is the United River Plate system in Argentina. Perhaps the most interesting year's record is that of the Shanghai Telephone Co., which in 1938 regained more than the number of stations removed from service during the 1937 hostilities around Shanghai; hence, its development stands at the highest in its history.

The systems in Rumania, Chile, Peru, the southern states of Brazil, Mexico, Cuba and Puerto Rico also reported station gains for 1938, and every one of these companies, likewise, with the exception of the Cuban company, is at its all-time peak development.

The system in Cuba dropped from 75,500 telephones in 1930 to 31,600 in 1935 due to the severely adverse general conditions in Cuba during that period, but had in the three years from January 1, 1936, to December 1, 1938, regained approximately 20,000 stations.

Telephone usage in territories served by I. T. & T. companies was greater in 1938 than ever before. Eight companies — excluding the Shanghai company, the toll service of which has been suspended for the present because of the unsettled conditions in China—handled approximately 27,600,000 domestic and international toll calls during the past year, a figure about 10 per cent higher than in 1937, a banner year.

Approximately 71 per cent of all telephones in I. T. & T. companies are now automatic. More than 63,000 stations were converted to dial operation in 1938, principally in Rumania, Argentina, Chile and Peru.

In several of the companies, business offices were moved to improved locations; and, in certain principal cities, new business offices were opened. The personal representative plan of business office organization was extended in Puerto Rico, and billing methods modernized in Rumania, Puerto Rico and Peru. The telephone directories in Shanghai and Mexico City were completely revised and "Buyers Guide Service Bureaus" established in Shanghai, Havana and San Juan, Puerto Rico.

I. T. & T. Construction and Extensions

In the construction and extension of facilities, the following 1938 projects of I. T. & T. companies are notable:

In Argentina, 21,000 lines of step-by-step automatic equipment were installed; radiotelephone service was extended to Algeria, French Morocco and Tunisia; international telephone service was opened with 51 central offices in Uruguay; connection was established through construction with the telephone network in three important northern provinces to provide Argentina with a complete national system.

In Rumania, five additional cities were cut-over to rotary automatic operation; also the first step in an extensive long distance underground toll cable was cut into service between Bucharest and the important oil center of Ploesti. Two cables of the most modern design suitable for 12-channel carrier operation were placed over this route, and extensions to Brasov and Buzaw are in process of manufacture.

In Chile, 5,000 lines of automatic equipment were added in Santiago and Valparaiso; a 400-kilometer toll circuit was constructed between Santiago and La Serana, connecting the important naval base of Coquiabo with Santiago.

In Shanghai, central office and outside plant additions were carried on intensively to keep pace with demand.

In Brazil, work is in progress on a new 220 kilometer toll line linking Porto Alegre in Rio Grandense Province with the important interior town of Santa Maria.

Automatic Ticketing and National Dialing

The Belgian "Régie des Télégraphes et des Téléphones" is credited with having been the first to try out and introduce automatic toll ticketing; and, hence—from the viewpoint of the subscriber's initiation of toll calls—inaugurating in 1937 and more particularly in 1938, what may be termed a fourth stage in telephone advancement: making

Watch for "Electronic Devices in Telephony"

Vacuum tubes in the past decade have become an important element of telephone equipment in long distance and in local exchange work. With this increasing use has come a desire among telephone equipment men for a better knowledge of electronics and of electronic devices. First used in the telephone field in the vacuum tube repeaters that made transcontinental telephony an actuality, the applications of electronic equipment in telephone work have rapidly expanded.

TELEPHONY has arranged for a series of articles presenting, in a simple and readily understood manner, information on "Electronic Devices in Telephony." This series is written by Arthur L. Albert, professor of communication engineering, Oregon State College. Professor Albert is well known to TELEPHONY readers through his clear expositions of theory involved in many technical phases of telephone work, in a number of articles published in TELEPHONY during the past several years.

His book, "Electrical Communication" published in 1934, is one of the most popular telephone technical books, and his just-published book on "Electronics and Vacuum Tubes" undoubtedly will be very favorably received.

Those TELEPHONY readers who have followed Professor Albert's various articles will welcome his latest series. The first article, entitled "Basic Electronic Principles," will appear in an issue this month. Watch for it!

it possible for the subscriber to employ precisely the same methods and achieve the same results in toll and long distance, as well as the local field, wholly automatically.

Automatic ticketing as a desideratum is not new; its reduction to practice, however, was long regarded as impracticable. It was developed by two companies in the International Telephone & Telegraph group. National dialing is largely a contribution of International System companies in cooperation with several of the telephone administrations in Europe.

Progress in the development and application of automatic ticketing in 1938 surpassed that of 1937. At the end of the latter year, 14,650 lines equipped with this facility were on order or installed; the figure at the end of 1938 reached 134,240 lines.

This increase is due mainly to the decision of the Belgian Regie to introduce automatic ticketing in the Brussels network. All multi-fee connections, outgoing from rotary exchanges installed in the city of Brussels, will be controlled by printer registers producing tickets containing the number of the calling party, the number of the called party, the duration of the conversation in minutes, the basic tariff, the time of day and the date.

The plans involve the progressive automatization of the whole of Belgium and were adopted by the Belgian Regie after the successful field trial of automatic ticketing between Bruges and Blankenberghe.

A further step in the application of automatic ticketing systems was achieved with the cutover of a new rotary 7-D exchange in Ostend, Belgium. In addition to providing a printed record of outgoing multi-fee connections, the Ostend equipment includes number identification equipment for outgoing no-delay toll connections handled manually. This number identification equipment displays, in front of the toll operator, the calling party number which is obtained from the identification equipment assocated with automatic ticketing. Special trains of selectors, formerly used for checking the number of the calling subscriber, are therefore not required.

The Hungarian Telephone Administration also has decided to introduce automatic toll service in Hungary. Automatic ticketing equipment will be utilized, involving Budapest, Papa and Miskolc.

In accordance with the policy of the Japanese Ministry of Communications, the use of automatic equipment which does not require the intervention of an operator is being extended. Equipment now in process of manufacture provides for the calling subscriber to dial first the toll number and then that of the distant party; then it records automatically the calling and called subscribers' numbers, the duration of a conversation, the date, etc.

In Holland, rotary equipment in The Hague is being arranged to provide national dialing facilities. These exchanges were among the first to be provided with rotary equipment and were originally designed for semi-automatic operation with automatic distribution of calls to operators, who completed connections by means of key sets on which the required number was depressed.

The semi-automatic equipment was later converted to full automatic; the original switches are still in service. The introduction of national dialing facilities is accomplished by the addition of new traffic paths and the segregation of outgong automatic toll calls from local calls. Provision for the introduction of automatic ticketing of outgoing toll calls is made for subscribers who request details of their telephone account.

The complete automatization of The Hague zone or district also is progressing. Rotary equipment will be installed in the important towns of Leiden and Delft.

In Zurich, Switzerland, a new full automatic national toll exchange was cut-over early in 1938 and an extension is in process of manufacture. The equipment now handles the full automatic outgoing toll traffic from the entire Zurich network, comprising 65 exchanges, to five other Swiss networks, including 80 exchanges. When the extension is completed, connection will be made to 11 different networks.

Developments in England's Telephone Service

The first submarine telephone cable between England and the Channel Islands was completed in August when 34 miles of cable, weighing more than 300 tons and laid from a cove near Dartmouth, was joined to a similar length laid from Guernsey.

Side by side with the systematic conversion of the whole British telephone system to automatic working, the British Post Office is developing plans for directly connecting the automatic exchanges over wide areas. By the end of 1938 more than half the telephone exchanges in Great Britain were working on the automatic system.

The complementary process of extending direct interconnection between exchanges will not yield visible results for probably about two years hence. Subscribers in different towns several miles apart will then be able to call each other direct, as they do at present when making local calls. The new system will be first introduced experimentally on the North-East Coast. Subscribers will simply dial a two-figure code number followed by the subscriber's number.

During the year ended September 30, no fewer than 393 automatic exchanges were opened for public service; of these, 346 were of the rural unit type. The elimination of the smaller and older manual exchanges also progressed considerably, and the year saw the completion of the 2,000th small unit automatic exchange.

Two new telephone models of the hand-microphone type were introduced late in the year. The first consists of the handset portion of the existing type of hand-microphone resting on a newly-designed base which contains the bell, and also incorporates a tray for a notepad.

The second model has been specially designed to meet the demand for an arrangement of the apparatus which will leave the top of an office desk entirely free. The new model will be hung in a convenient position in the kneehole of the desk; in areas where the automatic system has been installed the dial will be fitted in a suitable sliding bracket.

In cooperation with the Port of London Authority, the British Post Office last August introduced experimentally a "ships-in-port telephone service" in the South West India dock. Eight berths were equipped. When a ship is berthed a dock official will, upon request, hand to the captain a wooden cabinet containing the latest portable telephone equipment.

This, when opened, will form a writing desk with a telephone on a sliding platform and a rack containing the London telephone directory and the Authority's own directory. Connection with the Post Office exchange will be made by flexible lead run from the cabinet to a permanent socket on the quayside. Full facilities, including trunk and overseas service, will be available.

Shipping companies whose ships use the same berth each time they are in dock, have had the service available for a long time, but this represents only a proportion of the ships arriving.

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In the Nation's Capital

By FRANCIS X. WELCH

Special Washington, D. C., Correspondent for TELEPHONY

IN EVALUATING Washington happenings of 1938, some idea is given of what to look for in 1939 that carries special significance for the telephone industry. . . . One important issue developed last year was that of censorship in radio. . . . Decisions of U. S. Supreme Court involve lessons that should not be lost upon telephone industry. . . . Action of FCC on censorship issue and work of other Washington departments may have effects in 1939

THERE HAVE been so many reviews and prophecies appearing in print during the past holiday season that your correspondent would scarcely be contributing to the general enlightenment by attempting another at this late date. There might be some value, however, in recalling just three or four of the highspots of 1938 so that we may go forward in this still-new year with some idea of what to look for in 1939 which will really mean something special for the telephone industry.

Now "highspotting" is quite different from merely reviewing. It is an attempt to evaluate happenings according to their real weight. So many things are occurring all the time in Washington that the weary follower of the capital date lines may think of them all as important or unimportant, as he may happen to feel.

THE WASHINGTON story on communications, which received by far most of the headlines, was the conflict within the FCC, the purging, and dissenting, and so forth. But for the telephone industry this was hardly of major importance. For the Independent telephone industry certainly it was not as important as the wage-hour rulings still under negotiation with the Wage-Hour Administrator.

Conflict within the FCC was going on long before 1938 and, by reason of an administration-opposition dogfall in Congress, it seems quite likely to go on through 1939. Frankly speaking, it does not make so very much difference to the telephone industry.

There was relatively little FCC conflict over telephone regulation except for the report on the special telephone investigation, and that will soon be a thing of the past insofar as the FCC itself is concerned.

The disposition of the special telephone investigation report is quite another matter. The proposed report filed by Commissioner Walker last April was one of the most critical analyses of the telephone industry ever written. Already the FCC has shown by several incidents (such as the belated permission given for the filing of Bell defensive material) that its final report to Congress will be quite different in form and in tone from that of Commissioner Walker.

Even so, do not expect much to come of it by way of actual legislation during this year of 1939. It is this writer's belief that such legislative recommendations as are made in the final report (which now seems likely to be finished about late February or early March) will run afoul of the fighting over the FCC itself. In that event they are likely to be stalled over the present session.

Before leaving the FCC, notice should be taken of one really important issue that did develop during 1938 which is going to be with us for some time. It primarily concerns radio but should be of vital collateral interest to every industry and every citizen. It is the issue of censorship of broadcasting stations on grounds of "general public opinion."

Obviously, this is a much broader concept of censorship than mere censorship for political reasons, or censorship for the protection of public morals, or censorship to insure a high quality of entertainment (i.e., not too heavily-loaded with advertising or of generally poor content). Censorship on grounds of offending "general public opinion" includes all of these and goes further.

It is pretty certain, for example, that the majority of the American people resent the current persecution of racial and religious groups by European dictatorships. The Gallup polls show strong evidence of this and our press generally reflects it. But by the same token we have minority blocs in this country, mostly foreign nationalistic groups, which are sympathetic to the policies of these European powers.

When a spokesman for these groups presents himself at a broadcasting studio and offers to pay regular rates for the privilege of airing his views, what is the broadcaster to do? If he says "No," there goes up a hue and cry of "censorship" and charges that minority groups have no rights on the air.

If the broadcaster lets the speaker

proceed, he is overwhelmed with indignant complaints from the much wider circle of listeners who are violently opposed to foreign dictatorial tactics. Indeed, the station operator, under such circumstances, risks the impairment of the earning value of his station, since good will and good public relations obviously mean everything in the broadcasting business.

NEVILLE MILLER, president of the National Association of Broadcasters, recognized this problem in a proposal which he made some weeks ago to set up within the broadcasting industry a system for a voluntary board of regulators to draw up rules for the whole industry covering such situations and to pass upon controversial program material.

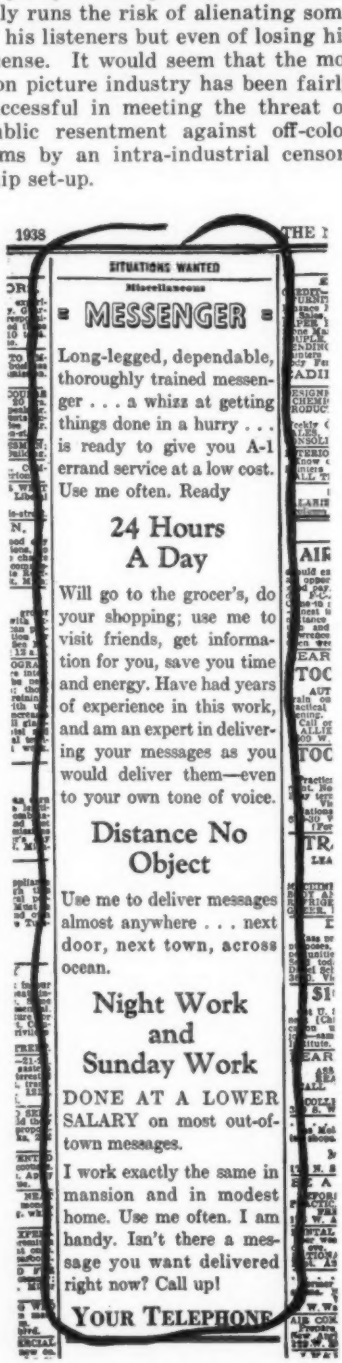
This immediately drew fire from Senator Wheeler of Montana, chairman of the Senate interstate commerce committee, who condemned Mr. Miller's proposal as being an attempt to set up a private board of censorship to suppress the rights of minorities to be heard on the air. The Senator wanted to know by what right the National Association of Broadcasters could assume they had the knowledge so as to be capable of telling the American people what was good for them and what was not.

It doesn't matter, he said, that the American people are almost unanimously opposed to the objectives of persecuting dictatorships. The precedent is bad; it might easily be employed for the suppression of less blameworthy and even progressive minorities in the future.

Mr. Miller's defense, of course, is that since the public and the FCC both seem to hold the broadcasters responsible for what goes on the air, it is only fair that the broadcasters be given some discretion, to the end that public opinions shall not be offended.

It is a serious question and one which the FCC can hardly help in answering. Chairman McNinch, it is true, has made some pretty strong statements about not standing by and letting radio become the mouthpiece of intolerance. The fact remains that the Communications Act gives the FCC itself no powers of censorship. The only pressure it can and does exert in this field is by taking so-called offensive programs into consideration in allowing the periodical (six months) renewal of broadcasting licenses.

Even assuming the validity of such indirect censorship by the FCC (such as its refusal to renew "in the public interest" the license of a station given over to bitter attacks upon certain religions or races), this very discretion of the FCC would put more and more responsibility upon the broadcasting station owner to see that his programs did not offend the majority of the public, since he not only runs the risk of alienating some of his listeners but even of losing his license. It would seem that the motion picture industry has been fairly successful in meeting the threat of public resentment against off-color films by an intra-industrial censorship set-up.


1938

SITUATIONS WANTED

Miscellaneous

MESSENGER

Long-legged, dependable, thoroughly trained messenger . . . a whizz at getting things done in a hurry . . . is ready to give you A-1 errand service at a low cost. Use me often. Ready

24 Hours A Day

Will go to the grocer's, do your shopping; use me to visit friends, get information for you, save you time and energy. Have had years of experience in this work, and am an expert in delivering your messages as you would deliver them—even to your own tone of voice.

Distance No Object

Use me to deliver messages almost anywhere . . . next door, next town, across ocean.

Night Work and Sunday Work

DONE AT A LOWER SALARY on most out-of-town messages.

I work exactly the same in mansion and in modest home. Use me often. I am handy. Isn't there a message you want delivered right now? Call up!

YOUR TELEPHONE

The Illinois Bell Telephone Co. makes use of the classified columns of Chicago newspapers in a novel way to direct attention to the Messenger that is "a whizz at getting things done in a hurry"—Your Telephone

THE SITUATION would be easier if there were available an unlimited amount of air space for broadcasting. Then the situation could be compared with newspaper publication wherein economic demand is the only curb on the printed expression of the most violent views, provided they do not transgress elementary principles of public decency. Minority groups in this country can act to publish all the newspapers they please—or, at least, all they can support.

But the radio space is limited—very limited. Furthermore, from the very nature of the medium, there is no way of controlling the contact with the audience. A bitterly intolerant newspaper goes only to one who wants to buy and read it. It doesn't bother anybody else. A bitterly intolerant broadcast goes not only to the minority who are pleased by it, but also to the majority who are enraged by it.

The whole problem is definitely not of a character to be settled by any strict rule of thumb. Certainly minorities should not be cut off the air entirely. Such a precedent might grow until it were some day employed by Democrats to keep Republicans off the air or vice versa. On the other hand, in view of the limitations of broadcasting and the universality of its contact with the public, minorities must reasonably expect to encounter a blue pencil more strict than could be applied to minority publications.

Tact, tolerance, and common sense will be required to work out the two differences in each case. And unless the problem is solved in this manner there is grave danger of a less desirable solution—government censorship.

Senator Wheeler's critique of the National Association of Broadcasters' proposal strongly intimates that if any censorship, as such, is necessary—and he hopes it will not be necessary—it will have to be a government censorship since the government would never permit a private industry to assume such a responsible power over public opinion. Such was the biggest problem of the past year that blossomed at the FCC—as the writer views it.

SUPREME COURT decisions, of course, are always important. But there is a certain finality about them that makes us take them for granted once they are over and done with. In this category fits the two major decisions of the year of 1938 of interest to the telephone industry.

Duke Power Co. v. Ickes, decided last January, upholds the authority of the federal government to finance in the name of job relief the construction of a competitive publicly-owned-and-operated utility plant.

The decision involved a power plant, but the lesson should not be lost upon the telephone industry. This case cut off an important anchor to the windward; and one never knows when the day will come when the government or some sub-section of the government will take it into its head to have a try at the telephone business.

The other Supreme Court decision, the Consolidated Edison case, decided last month, is still too fresh in our minds to warrant further elaboration here. Suffice to say, this Consolidated Edison case will be remembered by the utilities long after most of the other happenings during 1938 are forgotten.

The California gas rate case was another Supreme Court decision of 1938 of passing importance in that it seemed to betray a new disposition upon the part of the highest court to allow state commissions more liberty of action in determining the elusive utility rate base. However, the decision was far from conclusive, and we probably shall have another decision during the New Year (the York case appealed by the Pennsylvania Public Utility Commission) which seems likely to turn up equally important precedent along the general line of rate valuation.

Also of special importance to Independent telephone companies in which Bell has a minority interest is the appeal, now pending on the U. S. Supreme Court calendar, of the Rochester (N. Y.) Telephone Corp. against the jurisdictional claims of the FCC.

LOOKING elsewhere around Washington, two other government bureaus attract attention for what they did to the telephone industry in 1938. The Wage-Hour Administration is too recent a development to need any reminder; and since the issues involved are still under negotiation, further comment at this time might be premature.

The REA, which aroused the Independent telephone industry in 1937 with its strong position against allowing compensation for the expense of correcting inductive interference to rural telephone service from rural power line construction, seems to be mellowing as the months pass. From the field come reports of compromise and negotiations.

WE TELEPHONE OPERATORS

BY MISS ETHEL E. ELLIS

Central Iowa Telephone Co., Union, Iowa

We telephone operators have quite a life,
Working all hours—from morning 'til night,
Sometimes it's busy—sometimes it's slow—
But nonetheless it's on with the show.

Just picture in your mind, if you can
What they contend with—all over the land;
"Oh op'rator, what time is it, please?"
Or "what time does the train southbound leave?"

Remember when your children were ill
And all in bed with fevers and chills?
Think of the girl who got up at three
To answer your call, "A doctor, quick! Please!"

Remember the time when the stove blew up,
The room in flames went up with a puff?
What relief 'twas to know that a simple ring
The op'rator's help and friends 'twould bring.

Remember the day when with a bang
You slammed your receiver and said, "D—m"?
And how ashamed you were when you looked
At its big crack from the bang it took?

And when a great hurry you were in
The op'rator said, "Line's busy again".
"Thanks" did you say, "I'll call after while"?
Or bawl her out in your special style?

Wouldn't you like an op'rator to be
Learning all secrets by op'ning keys?
And ev'ryone's joys, sorrows and strifes—
Those little things that make up our lives?

The op'rator takes all in her stride
A purpose to please, her aim and pride,
When the line's busy, recall if you can
Another patron's using the line.

Maybe Congress in 1939 will get around to passing laws giving positive relief to telephone companies under such circumstances. If not, it is not unlikely that the REA and the Independents will finally dispose of most of their differences during this New Year.

AS TO THE WORK of other departments of the federal government, the effect upon the telephone industry in 1938 was collateral rather than direct but no less vital. This is true of the Treasury Department, the Social Security Board and the numerous other fact-finding and regulation agencies which variously help and hinder business.

For the year 1939, keep your eye especially on the three oldest departments: State, War and Navy. The obvious reason is the unstable international situation and the certainty that a serious war anywhere—even though not involving us as a nation—would be bound to have important repercussions throughout our entire business world.

The State Department is the agency which makes or avoids war in the first instance. The War and Navy departments, of course, fight and prepare for them. As stated before in this department, rearmament is going to be a big feature in 1939—and probably an expensive one. This alone should be enough to engage the most respectful attention of business.

▼ ▼

No One Best Way to Be a Thinker

One man's meat may be another's poison in mental as well as bodily life, according to a statement by Dr. C. S. Myers, head of the National Institute of Industrial Psychology, in London, England. There is no single way of thinking, system of life or set of mental habits which Dr. Myers is willing to call the best. Some people's minds do their best work at night, others in the daytime.

For some people a regular, well-ordered life seems to be necessary to mental strength and productivity. Other people accomplish just as many and as brilliant mental feats in spite of, or perhaps because of, irregular hours, excesses in food or drink or other items which ruin altogether the mental processes of orderly folk.

For most people, powerful drugs such as opium or alcohol seem to damage their mental abilities, but many individuals have existed who found such things beneficial in the mental sphere. What every would-be thinker, or his physician, apparently must do is to find out just how and when his particular mind works best, and then to provide as nearly as possible those optimum conditions.

Because Edgar Allen Poe was a great poet on alcohol, because De Quincey wrote well on opium or because Mark Twain did his best work in bed, drink, opium or laziness are not necessarily the best for anyone else.

Only three things, Dr. Myers decides, do improve the thinking of almost everybody. One is freedom from worry or anxiety. The second is some kind of mental discipline, so that scatterbrain thinking is avoided. The third is good bodily health based on adequate food, sleep and similar necessities.

Plant Men Talk Things Over

New Toll Testboard in Lincoln, Neb.

A new toll testboard was installed by The Lincoln Telephone & Telegraph Co., last fall in its general office building in Lincoln, Neb. This new equipment, a major item in the company's 1938 betterment program, gives added assurance of the Lincoln company's ability to render excellent long distance service to its subscribers.

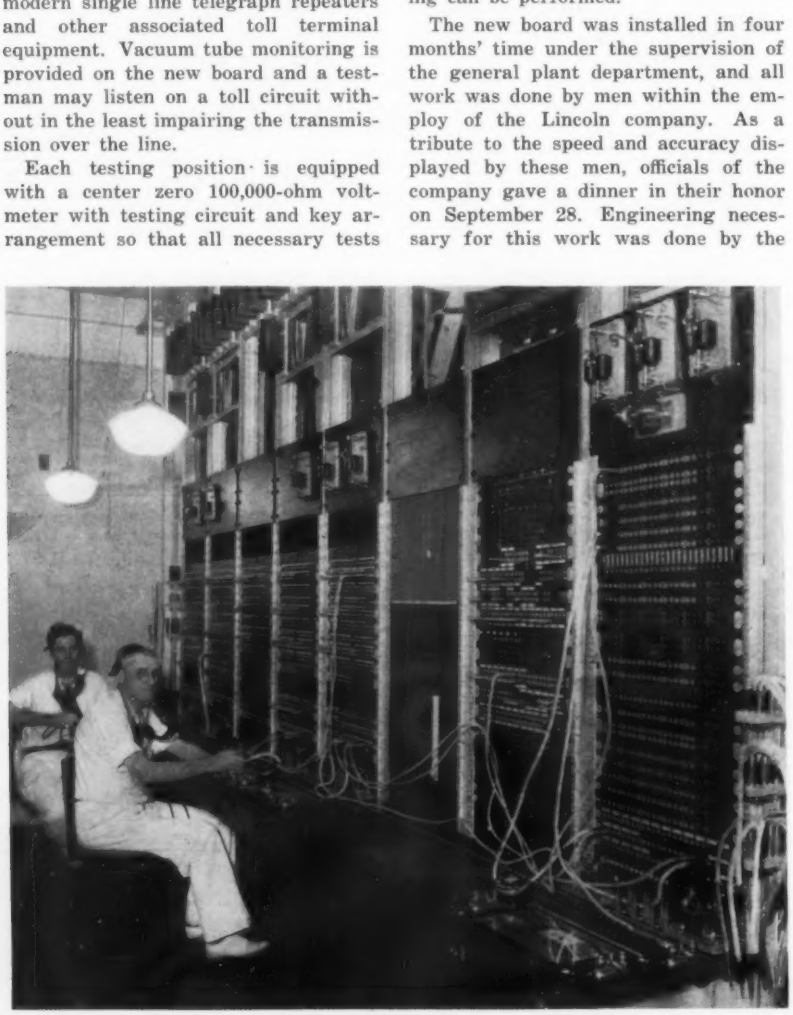
The new board, replacing one used since 1906, consists of four telephone positions, one Wheatstone bridge position and two telegraph positions. In addition there were placed in service seven duplex telegraph repeaters, four modern single line telegraph repeaters and other associated toll terminal equipment. Vacuum tube monitoring is provided on the new board and a testman may listen on a toll circuit without in the least impairing the transmission over the line.

Each testing position is equipped with a center zero 100,000-ohm voltmeter with testing circuit and key arrangement so that all necessary tests may be made from any one position. The Wheatstone bridge connects through suitable keys to each test position and provides means for determining the distance to such line faults as opens, shorts and grounds. At the two telegraph positions, the testmen may patch, test and monitor on Morse and printer services.

The chain broadcast equipment bay is located near the testboard and is supervised and adjusted as required by the testboardmen. Transmission testing facilities are provided as a part of the new equipment and wired to the testboard, toll board and switchroom so that all types of transmission testing can be performed.

The new board was installed in four months' time under the supervision of the general plant department, and all work was done by men within the employ of the Lincoln company. As a tribute to the speed and accuracy displayed by these men, officials of the company gave a dinner in their honor on September 28. Engineering necessary for this work was done by the traffic department under the direction of General Traffic Superintendent R. S. Brewster and Assistant General Traffic Superintendent C. C. Donley, without the assistance of outside technical help.

The new board makes it possible to handle all forms of leased wire service through Lincoln—something which was not possible in the past.



View of new toll test switchboard installed last fall in Lincoln, Neb., exchange of Lincoln Telephone & Telegraph Co. with C. E. HARP and JARVE REMIS at the board.

▼ ▼

Pipe Pusher for Placing Wire Under Highways

A small and compact pipe pusher designed by the Bell Telephone Laboratories to facilitate the installation of buried rural wire under improved highways is said to have proven highly successful when put to use in the northeastern area of the Ohio Bell Telephone Co.

Weighing only 75 pounds, the new pipe pusher operates in connection with the work of burying rubber-covered wire for locations where large cable plant is not required, according to a story related in the Ohio Bell. The wire is buried by a plow especially designed for that purpose, and previously described in TELEPHONY, and when the course intersects hard-surfaced roads and highways the pipe pusher is brought into action.

By means of leverage exerted by two men, the pipe pusher forces a ¾-inch pipe under the highway without damage to the surface. Normally two men can push 30 to 40 feet of pipe in five-foot sections with comparative ease. Should a larger hole be required for jute-protected or tape-armored cable than is made by the ¾-inch pipe, the pipe can be removed and the opening enlarged by pulling a winch line and mandrel through it.

▼ ▼

Tree Clearance and Preventive Maintenance

By R. D. PARKER

Geneseo (Ill.) Co-operative Telephone Co.

In small and medium-sized telephone exchanges where it does not seem advisable to employ tree experts, tree clearance provides a problem that should not prove difficult to any telephone man. There are several points, however, that should be kept well in mind.

Primary among these is public relations. All telephone men should realize the importance of customer goodwill, and the conduct of the men in a tree trimming gang can be the source of a great deal of either good or bad will.

Recently our company decided to make a tree clearance campaign. Upon the advice of local nursery men we settled upon the fall as the time to begin, for the trees are less likely to be injured then than at other times.

First, we secured the consent of the city council committee on streets and alleys to trim the trees on city property, with the understanding that we would do nothing against the wishes of the adjoining property owners and that we would obtain the supervision of the city street commissioner when we desired to remove any large limbs.

Next we went to the city clerk's office and obtained a map of the city, about 22 to 30 inches in size, and posted this upon the wall of the terminal room. Then in mapping out the campaign the wire chief took a blue pencil and marked the edges of the area to be covered.

A city block usually proved to be the most convenient area to cover at one time. After the gang had completed work in the specified area, the foreman would call the wire chief and was told where to go next. In this way we were able to keep an accurate check of the work done; and we always knew where the men were, in case they were needed.

We used three men on a truck and found this was a very convenient number. It was the foreman's job to get the consent of the property owner in each case, and to direct the work. We were fortunate in finding an eroded gully near the edge of town in which to dispose of our brush. The land owner was very glad to have us put it there.

In order to increase the truck's capacity we used a trailer behind it, and even then we had to make several trips from some blocks. One thing which seemed to make quite a hit with the tree owners was our use of antiseptic pruning paint where we cut off any sizable limb.

The campaign did not cover tree trimming alone. We instructed the men to watch for any condition which might lead to trouble. They found several places where the wires were too low or riding on building roofs. These were all pulled up or rerouted.

Occasionally a property owner would not allow us to trim. As these were usually fruit or nice shade trees the objection was easily understandable and we made an effort to reroute the circuits. Where this was not practical, we replaced the wire with abrasion resistant tree wire.

On one occasion an elderly woman objected strenuously to our even touching her trees until the foreman, in talking with her, happened to mention the telephone company. "Telephone company!" she exclaimed. "I thought you were from the electric light company," and then she proceeded to direct a very satisfactory job of trimming. Here was a place where good public relations paid very real dividends.

A salesman who calls on us tells this story of a maintenance man in a town he was visiting: The manager, the lineman and the salesman were talking when a trouble report came in. The lineman rose and proudly stated that he knew just where that trouble was and that he would have it fixed in ten minutes.

This, according to the salesman, was a poor recommendation for the lineman, because if he knew where a case of trouble might happen, he most certainly should have prevented it from happening.

That is the spirit in which we have tried to carry on our clearance campaign. We have tried to fix the trouble before it happens; in short, to practice preventive maintenance.

A YOUNG LINEMAN OF PORT BYRON, N. Y.

C. THEODORE WESTON, manager and treasurer of the Port Byron (N. Y.) Telephone Co., and his 11-year-old son, ROYCE C., who is already acquiring experience in testing lines and running down trouble. No doubt more will be heard about Royce in another decade or so in the department, "Fathers and Sons in the Independent Telehpone Industry." His father is a native of New York state. He was born in the village of Throop, November 9, 1896. He was educated in the Port Byron high school, after which he continued his studies with the aid of an International Correspondence School course.

In June, 1914, Mr. Weston entered the employ of the Port Byron Telephone Co., serving first as lineman and repairman, then as assistant manager, and at the present time manager and treasurer. He is active in community affairs and is at present serving as president of the local chamber of commerce. He is a member of Masonic lodge.

▼ ▼

England's Mobile Exchange for Temporary Use

The British Postmaster General has inaugurated a mobile automatic telephone exchange. The new telephone exchange on wheels is the first in the world.

It can be used for restoring telephone service if the ordinary exchange is out of action by fire or other calamity. It can also be used where unavoidable delay has occurred in completing a new exchange.

The unit is self-contained, with a gasoline engine which automatically charges the batteries as required. Rain water on the roof is collected and used for cooling the engine. The capacity of the unit is 100 circuits.

Another Fli

. . . Strowger Auto Eq
Telephone Service f ort

Winter sojourners in Florida encounter not only an abundance of sunshine and balmy breezes, but also find the active business life of the state reflected in its progressive, flourishing cities.

Situated in the midst of the west coast resort region, the properties of the Peninsular Telephone Company include a large number of such centers —typified by such well-known names as Tampa, St. Petersburg, Sarasota, Bradenton, Lakeland, etc. Early in its history, this company determined to provide its patrons with the finest service that it was possible to obtain. In accordance with this decision, Strowger Automatic equipment was installed in Main exchange at Tampa in April, 1915, and was followed shortly afterward by similar conversions of other important exchanges.

So successful were these installations, that a scheme of gradual conversion was decided upon for the company's entire network, until today 16 of its total of 20 exchanges are using Strowger Automatic equipment. Telephone executives will find this company's operating record worth careful study as typical of Strowger Automatic reliability and economy in daily service over a long period of years.

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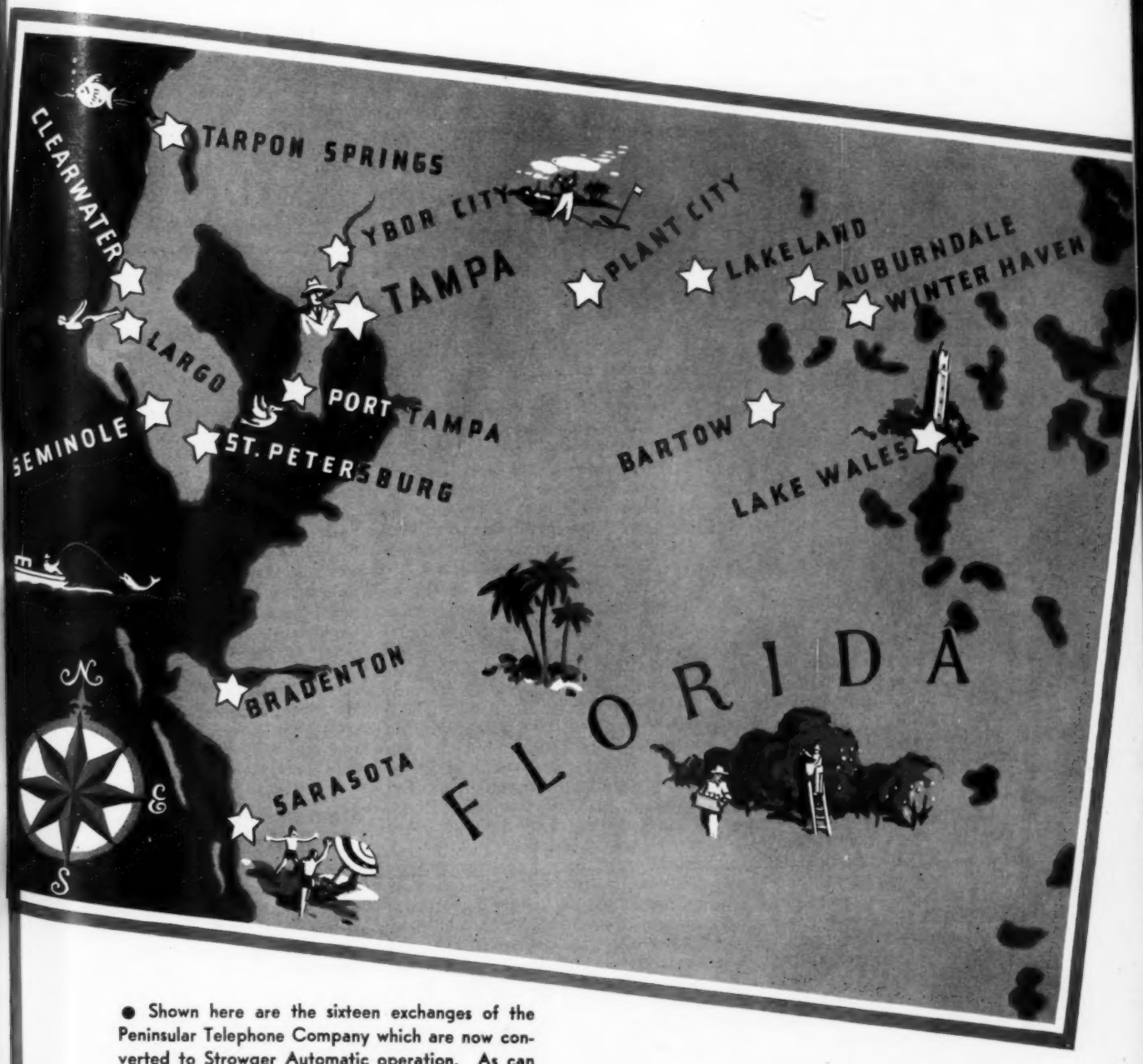
Auto Equipment Provides Modern ce portant Winter Vacation Centers



● Shown here are the sixteen exchanges of the Peninsular Telephone Company which are now converted to Strowger Automatic operation. As can be seen, this automatic network includes several of the largest and most important cities in Florida.

The Operators' Corner

By MAYME WORKMAN
Traffic Supervisor, The Illinois Telephone Association, Springfield, Ill.

VIOLATING secrecy of telephone communication may bring severe penalties. Series No. 352

WHEN I WAS a little girl and exhibited an unusual amount of curiosity concerning something which was none of my business, Mother would say: "Curiosity killed the cat." I used to wonder what the cat did to get killed and will have to confess it is still a mystery. However, this phrase taught me early in life that there are some things which are none of our business; that people are privileged to privacy and that we must respect that privacy.

In the telephone business we must *protect* as well as respect the privacy of others in all telephone communications. This policy must be strictly followed by every telephone employe. Any violation will not only result in severe disciplinary action by the telephone company but, in addition, may subject the employe to legal punishment.

The absolute necessity for the strictest secrecy and the severe legal penalties imposed for violating the secrecy of telephone communications makes it obligatory that *everyone* handling, supervising, or observing calls be thoroughly familiar with this requirement. It is the duty of the chief operator to see that all of the people in her department are instructed in this respect.

The Federal Communications Act provides a fine of not more than $10,000 or imprisonment for a term of not more than two years, or both, for any person who wilfully and knowingly violates any provision of the Act relating to the secrecy of communications.

In addition to the Federal penalties, the laws of Illinois and Indiana make it an offense punishable by severe penalties to violate the secrecy of the telephone communications.

The names of parties talking, dates, time or places in connection with toll calls, so far as recorded on the toll tickets, may be given by the operator, supervisor, or chief operator to the subscribers at the telephones involved or to the parties talking, when properly identified. No other known information should be given without authority.

Definite routines are established for handling requests to trace telephone calls. When requests to trace telephone calls are received by traffic employes from municipal, state or Federal authorities or from individuals and the request is of an urgent nature, the routine covering such requests will be handled as outlined in the following; requests of a less urgent nature shall be handled in accordance with the provisions in your Local Operating Practice:

(1) Request to trace call that involves a non-published line: If the request necessitates reference to your records concerning a subscriber of a non-published line, refer it to the manager immediately.

(2) Request to trace a local or toll call at the time of conversation, before the connection is taken down: If the called party flashes and asks for the number of the line from which the call was made or the called party has more than one telephone and engages the calling party in conversation while he has someone call the chief operator and asks to have the call traced, furnish the information, if possible.

If the call came from a jack-per-station party line and the particular station number is not known, give out all the numbers on the line and explain that it is a party line. However, if the call was made from a jack-per-line party line, and the station designated is unknown, the line number should be given out. In such cases, either local or toll, give out as much definite information as you may have.

Calls originating at dial telephones can be traced, at the request of the called party, only when the request to trace is received from another telephone and the calling party is engaged in conversation a sufficient length of time to trace the call through the equipment which requires from 10 to 15 minutes. As an exception, if the connection was established through the dial "A" board, the called party can flash the DS "A" operator.

More information on this subject will appear in the next "Operators' Corner."

Questions from Illinois Operators

1. Can an operator from an Independent tributary give an OD to another operator from an Independent tributary if the line is not out of order?
2. Should messenger calls be passed as a WH?
3. When using an alternate route to a direct circuit point, should one leave a BY order?
4. Why do operators use pencils without erasers?
5. To whom should a collect call to a guest of a hotel be announced as "collect"?

The answers to these traffic questions are given on page 26.

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New Subscribers Listed in Advertisement

Many times a person looks up a name in the telephone directory, only to find it not listed. Sometimes, one may know the address and can ask the information operator for the number, but, more often, the address is not known.

To overcome this inconvenience, the La Crosse (Wis.) Telephone Corp., at regular intervals, lists new subscribers' names, addresses and telephone numbers in a display advertisement in the local newspapers. In such an advertisement before Christmas, the company called attention to long distance facilities available. In black capital letters at the bottom of the ad were these words:

"Call the folks! If you can't be with the folks during the holidays visit with them over the telephone. Wherever they may be, long distance will reach them quickly and cheaply."

▼ ▼

Quota Surpassed in Nebraska Sales Campaign

A "Bring Home the Bacon" campaign by employes of the Lincoln Telephone & Telegraph Co., Lincoln, Neb., for the month of November resulted in 1,270 station sales and 969 miscellaneous sales. The station quota was 1,018. This represented a net station gain for the month of 154.

Sales resistance in the agricultural and smaller communities is high these days as a result of adverse weather and economic conditions, which have left many without cash reserves. The number of interviews totaled 19,754.

Personal Items From the Field

THOMAS E. O'BRIEN, of Aberdeen, S. D., has been made district manager for the Dakota Central Telephone Co. at Huron, succeeding E. J. Calendine, who retired recently, after more than 41 years of service with Bell System companies.

▼

FRANK H. ELSENPETER, Maple Lake, Minn., manager of the Maple Lake Telephone Co., retired December 1 after having had charge of the telephone system for 25 years. He aided in its development from infancy to the present state of efficiency, and leaves the telephone field with no regrets for having chosen it for his vocation. He enjoyed his work and his contacts with people, many times having to exercise much tact in handling subscribers.

▼

WAYNE GEE, experienced electrician and business man of Maple Lake, Minn., has taken over the management of the Maple Lake Telephone Co. and will have full charge of its operation. His business experience has fitted him for dealing tactfully with the public and his mechanical training qualifies him to fill efficiently the many demands made upon the manager of a small exchange.

▼

J. C. BOUSH has resigned as secretary, treasurer and general manager of the Geneva (Ohio) Telephone Co., effective January 1, owing to the impaired state of his health. He has directed the operations of the Geneva company for nearly nine years and has been associated with the telephone industry for 39 years.

Immediately prior to becoming general manager of the Geneva company he was affiliated with L. M. Berry & Co., of Dayton, Ohio. Most of his telephone experience was in the state of Ohio.

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FRANK B. JEWETT, vice-president of the A. T. & T. Co., and president of the Bell Telephone Laboratories, has been awarded the John Fritz Gold Medal, highest of American engineering honors, for 1939, for "vision and leadership in science, and for notable achievement in the furtherance of industrial research and development in communication."

The award is made by a board composed of representatives of the American Society of Civil Engineers, American Institute of Mining and Metallurgical Engineers, American Society of Mechanical Engineers, and American Institute of Electrical Engineers.

Among other distinguished scientists who have been recipients of the John Fritz Medal have been Alexander Graham Bell, John J. Carty, former chief engineer and later vice-president in charge of development and research of the A. T. & T. Co., Lord Kelvin, Guglielmo Marconi, and Thomas A. Edison.

▼

CLARENCE A. BESWICK, for 15 years connected with the Geneva (Ohio) Telephone Co. has been assigned to the post of acting manager to succeed J. C. Boush, who has retired because of ill health.

▼

JOHN R. RUDDICK, chief accountant of the Indiana Bell Telephone Co. for the past 12 years, has been elected secretary-treasurer by the board of directors. He succeeds Phil M. Watson, who died August 9. Mr. Ruddick has served 33 years in the telephone industry, all of which time has been spent in accounting.

▼

CHARLES H. CRANE has been appointed Paris district manager of the Wabash Telephone Co., of Bloomington, Ill. Mr. Crane has recently been located at Washington, Iowa, where he was connected with the Iowa Continental Telephone Co. He is a native of Seymour, Ind., and was employed for a time at Terre Haute, Ind. He has had 12 years of experience in the telephone field.

Under his jurisdiction will be the exchanges at Paris, Vermilion, Redmon, Chrisman and Metcalf. He succeeds S. B. Green, who has been transferred to the position of district manager at Streator, Ill.

▼

CHARLES B. HAYDEN, of Madison, Wis., assistant chief engineer of the Wisconsin Public Service Commission, celebrated his silver anniversary of continuous employment with the commission on December 15.

Commissioners honored him at their meeting on that afternoon. Mr. Hayden recounted his experience with the commission. He told how he had operated a small utility at Sun Prairie for 10 years previous to his association with the old state railroad commission on December 15, 1913, as electrical engineer.

Friends told of his ability as a baseball player years ago when he pitched Beloit College and the University of Wisconsin to victories.

On the evening of December 15 more than 400 years of service to the commission and the state of Wisconsin, an average of nearly 20 years per man, were represented by associates at a dinner in Mr. Hayden's honor. With few exceptions, the guests have served the commission continuously.

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H. P. BALL, auditor of disbursements of the Indiana Bell Telephone Co. more than 12 years, has been appointed chief accountant. A. H. Warne, supervisor of statistics, was named auditor of disbursements.

Mr. Ball has been engaged in telephone work 28 years. He began in Indianapolis, his native city, in January, 1911. More than two years later he was named a supervisor in the plant account's office. In May, 1917, he was transferred to Chicago as a supervisor. He returned to Indianapolis in 1920 and was named supervisor of methods in October, 1921. In May, 1926, he was named auditor of disbursements of the company.

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MISS MARY McGILL, with a record of 33 years in the service, not only ranks as the dean of telephone operators in Columbus, Ohio, but she is a native-born resident of the city. She secured her first position as an operator after working two weeks without pay and has remained continuously on the payroll since that time. The Ohio Bell Telephone Co. operates the Columbus exchange.

In 1933 Miss McGill was assigned to the duties as chief operator in the private exchange in the State Office Building. At that time this exchange was handling approximately 4,900 calls a day, which has now increased to approximately 12,000 calls a day.

An interesting feature in connection with this exchange is that Miss McGill can arrange a conference meeting of the governor's cabinet on short notice any time he wishes to talk over state business. She has available conference circuit facilities which make it possible for seven persons to confer without the necessity of leaving their offices.

The veteran operator is a firm believer in informational service. Often when questions are asked, if she is unable to give the information or get it in a brief time, a notation of the question is made together with answer after it has been secured, so that the information will be available if ever called for again.

Commission and Court Activities

REA Considers Telephone Program in North Carolina

The North Carolina Rural Electrification Authority plans a survey to determine whether there is a demand for a rural telephone promotion program in North Carolina similar to the electrification work already engaged in by the agency.

Dudley Bagley, authority chairman, said the 1939 general assembly might be asked to provide an appropriation for an engineer to make a state-wide study. If a demand is found for a rural telephone program, he said, the 1941 general assembly will be asked to make an appropriation for it.

The North Carolina state grange has asked the authority to inaugurate such a program.

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Assails Administrative Costs to Bell Subsidiaries

At a hearing in Philadelphia, December 14, in the rate investigation of the Bell Telephone Co. of Pennsylvania A. J. Creskoff, special counsel for the Pennsylvania Public Utility Commission, termed ridiculous the apportionment of the American Telephone & Telegraph Co. of only $367,000 a year to its corporate self for officers' salaries and administration expenses while billing the Pennsylvania company $1,000,000 for "supervision."

The counsel testified that the subsidiary companies bear 95 per cent of the parent company's $21,000,000 annual outlay for administrative expenses.

The propriety of the "supervision" charge is one item to be considered in determining the fairness of the rates and the apportionment was regarded as important in the light of many protests in Philadelphia and in the suburbs against the Bell's proposed increase in rates, February 1, for "foreign exchange" service.

"Foreign exchange" is understood as a connection from a suburban telephone to an exchange in an adjoining community instead of to the exchange in the community in which the subscriber lives. Thus, some 3,000 subscribers in Philadelphia suburbs have lines running to Philadelphia exchanges and are listed with Philadelphia local numbers. This plan enables the subscriber to make calls into the city without paying toll rates.

Subscribers to this foreign exchange service are now permitted to make an unlimited number of calls monthly. However, the Bell company now proposes to limit calls from those and other suburban telephones to 45 to 60 calls a month.

It also plans to adjust the "mileage charge," now billed against foreign exchange subscribers. Instead, an "air line" basis would be established, the subscriber paying only for the direct distance by air between his telephone and his exchange.

Those changes would mean an actual $23,000 increase in charges in Pennsylvania, a company representative testified at the recent hearing. He added, however, that, by permitting "limited message" subscribers to telephone from their zone to adjoining 5-cent toll points on the regular local basis, an over-all saving would be made of $42,000 to Pennsylvania subscribers.

Suburban civic groups, however, plan protest meetings before January 10 when the commission will hold a hearing in Philadelphia on the Bell company's proposals. Another hearing is scheduled for January 18 in Pittsburgh.

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New Dial Equipment, Higher Rates Approved

Granting petitions of the Southern Bell Telephone & Telegraph Co. for authority to install dial equipment in its exchanges at Prattville, Greensboro and Montevallo, Ala., the Alabama Public Service Commission on November 10 approved schedules of advanced service rates to become effective when the new dial systems go into use in the three towns.

Requests for approval of the rate schedules proposed were based by the company on the statement that to make the change from magneto to the dial systems would cost $8,200 at Prattville, $6,700 at Greensboro and $5,000 at Montevallo. Increases in service charges would be necessary, it was claimed, to enable the company to earn a fair return on its increased investments in the towns concerned.

The commissioner's order of approval requires the company to make annual reports of the revenues derived from the new rates, and reserves the right of the commission to order reductions if such action is shown by these reports to be justified.

New monthly rates are to become effective with first billings after conversion of magneto to dial systems has been completed.

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"Locality" Area Included in Lansing, Mich., Area

Authority was granted the Michigan Bell Telephone Co. last fall to establish a "locality" area in the Lansing exchange to include the unicorporated village of Okemos and the territory immediately adjacent thereto. Subscribers located both within and outside the proposed locality area will derive substantial benefit in the form of reduced monthly charges due to reduced line mileage charges.

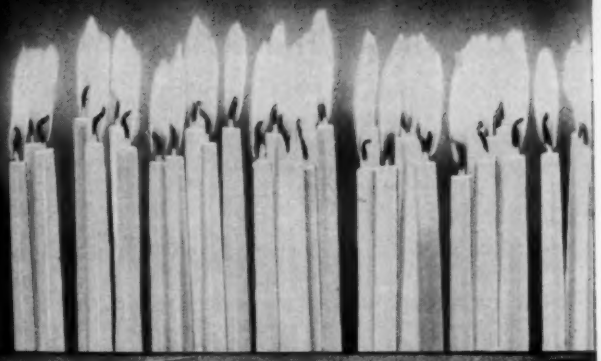
Of the 104 homes and 18 business places located in or near Okemos, which are included within the boundaries of Section 21, Meridian township, Ingham county, 76 received telephone service. Of the 76, 19 subscribed to urban service of one-party, two-party or four-party classification while the remaining 57 received rural service.

At the hearing it was testified that each of the 19 subscribers receiving urban service paid the Lansing base rate for his class of service, together with exchange line mileage charges—but one subscriber soon was paying for one-half mile of exchange line mileage and the other 18 subscribers were presently paying for from three-quarters of a mile to 1¼ mile of exchange line mileage.

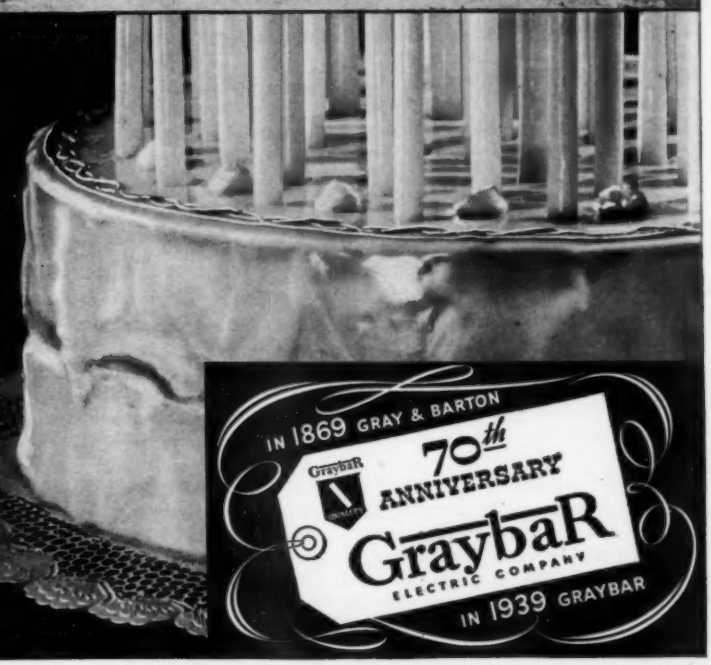
By establishing a locality area, the Michigan Bell proposed to abolish these line mileage charges and to institute within the area a rate schedule equivalent to the present Lansing base rate plus the charge for one-half mile of exchange line mileage. This rate schedule "would result in a reduction in the charges to all urban subscribers in the area save one who is presently paying for one-half mile of exchange line mileage."

The Bell company's proposal does not apply to rural line service and the 57 rural line subscribers would not be affected by the change, nor would any future rural user be thus affected. However, rural line subscribers at their option would be afforded the opportu-

70th ANNIVERSARY



IN 1869
GRAY & BARTON



IN 1939
GraybaR

OFFICES IN 83 PRINCIPAL CITIES FROM COAST TO COAST

nity of securing urban service at lesser rates than those then applicable.

It was testified that 31 subscribers would immediately benefit by the change with a total annual reduction in their charges of $262.68 or an average of $8.58 per subscriber. The lowest annual reduction received by any subscriber within the area will be $4.68 per year to nine four-party residence subscribers. The highest reduction will be approximately $19 per year to each of two business subscribers.

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To Purchase Six Nebraska Exchanges

E. C. Hunt, the largest individual telephone operator in Nebraska recently secured permission of the Nebraska State Railway commission for authority to purchase exchanges at Bloomfield, Wausa, Crofton, Verdigre and Winnetoon, all in Knox county and Osmond, which is in nearby Pierce county. Mr. Hunt also asked authority to issue $55,000 in bonds and $40,000 in stock to finance the purchase.

These, with a group of six other companies that Mr. Hunt recently purchased, formed the holdings of the Western Telephone Corp., a subsidiary of Western Light & Telephone Co., with headquarters at Kansas City, Kans.

The six new exchanges will be combined with the Northeastern Telephone Co. of Walthill, which also operates exchanges at Winnebago and Rosalie. The last report of the Western corporation gave the properties sold assets of $98,543.

Later, because of a legal obstacle, Mr. Hunt asked the Nebraska State Railway Commission to permit him to substitute the name of the Union Telephone Co. of Blair for that of the Northeastern Telephone Co. of Walthill, as purchaser of the exchanges at Bloomfield, Wausa, Verdigre, Winnetoon and Crofton, the last remaining properties of the Western Telephone Corp. in Nebraska. The exchange at Osmond will be separately operated.

The Union Telephone Co. operates an exchange at Carroll, but a new incorporation was made for the purpose of making Blair its headquarters, from which Mr. Hunt operates his group of companies. The commission authorized the issuance of $55,000 in bonds and $40,000 in stock to finance the purchases.

With these purchases Mr. Hunt becomes the owner of 30 exchanges in as many towns in Nebraska, with a total of 6,036 stations and assets of nearly $600,000. Mr. Hunt began with the Citizens Telephone Co. of Malmo, and has steadily increased his holdings. He has long been a director of the Nebraska Telephone Association.

The list of companies, of which Mr. Hunt is either sole or majority stock owner, comprise the Arlington Telephone Co., 396 stations and assets of $54,370; Belden Telephone Co., 36 stations and assets of $5,738; Public Telephone Co., of Blair, 906 stations and assets of $9,786 with exchanges at Arnold, Callaway, Stapleton, Oconto, Ewing and Page.

Blair Telephone Co., 973 stations and assets of $148,693, with exchanges at Blair, Kennard and Fort Calhoun; Citizens Telephone Co., of Malmo, 684 stations and assets of $114,897, with exchanges at Malmo, Prague, Morse Bluffs, Weston and Elgin; Union Telephone Co., of Carroll, 66 stations and assets of $9,663.

Northern Telephone Co., of Niobrara, 396 stations and assets of $10,778, with exchanges at Niobrara and Creighton; Meadow Grove Telephone Co., 196 stations and assets of $22,739; Skeedee Telephone Co., of St. Edwards, 443 stations and $52,506 assets; Northeastern Telephone Co., 270 stations and assets of $51,431, with exchanges at Walthill, Winnebago and Rosalie.

Most of the Hunt properties are located in northeastern Nebraska. Considerable money will have to be expended in rebuilding the latest purchases, as the Western Telephone Corp. had not been financially able to maintain the properties. It made most of its purchases when it extended its operations into Nebraska from local owners.

Bloomfield has 447 stations; Wausa, 512; Crofton, 154; Verdigre, 178; Winnetoon, 297, and Osmond 62. Mr. Hunt lives at Blair, from which he superintends his holdings.

A. L. Mulligan of Kansas City, Kans., is president of the Western Telephone Corp. Revenues of the six exchanges involved in the transfer for 1937 were $26,502 and expenses $21,233, with a deficit of $1,682.

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REA and Other Costs Cause Higher Telephone Rates

In view of evidence submitted by the Hector Telephone Co., Hector, Minn., that its revenues were insufficient to meet the cost of properly maintaining and operating the properties and provide a reasonable rate of return on a value materially less than claimed by the company, the Minnesota Railroad & Warehouse Commission has authorized the company to establish a new schedule of rates.

The Hector company serves approximately 210 local and 261 rural subscribers at Hector. Evidence was submitted to show that the company's average annual net income for the past 20 years had been only $694, equal to 1.6 per cent of the average plant in service during that period; that this net income was fast being swallowed up by the added cost of operation caused by increased taxes, public requirements, material and labor, and higher maintenance costs on rural lines, due to paralleling Rural Electrification Administration lines.

The company's property value as of December 31, 1937, was $54,949.80, excluding any claim for working capital, going concern value or other overhead. Due to REA construction the company is required to metallicize its grounded rural lines and this work, then under way, was estimated to cost $6,653, bringing the present book cost of the property to $61,601.80.

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Rates for Retractile Cords Installed by Michigan Bell

The Michigan Public Utilities Commission recently authorized the Michigan Bell Telephone Co. to make effective a charge of 50 cents for each retractile cord installed at the time of a visit on the same premises necessitated by other work covered by a service order and for other installations a charge of $1 for the first retractile cord and 50 cents for each additional cord installed at the same time on one premises of the customer.

The retractile cord, it was said, consists of textile insulated tinsel conductors covered with an outer cotton braid having stretched rubber bands held in place by the braid, the strands causing the cord to form a coil of approximately three-quarters of an inch in diameter, and allowing it to extend with slight tension to a useful length.

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Stock Issue Authorized to Cover Expansion

The Upstate Telephone Corp of New York, with headquarters at Johnstown, has been authorized by the New York Public Service Commission to issue not to exceed $155,000 par amount of its capital stock to consist of not to exceed 1,550 shares of common stock of the par value of $100 each, and to realize proceeds of not less than $155,000 which are to be applied to the payment of $118,953.09 of accounts payable that were outstanding at April 30, 1938; $17,500 to the conversion of the Fonda, Fort Plain and Canajoharie exchanges, to be in addition to the amount authorized therefor in a previous proceeding; and $18,546.91 for cash working capital.

To show the necessity for the requested reimbursement, the corporation advised that the proceeds to be derived from the sale of the stock would be used by it to pay its accounts payable of

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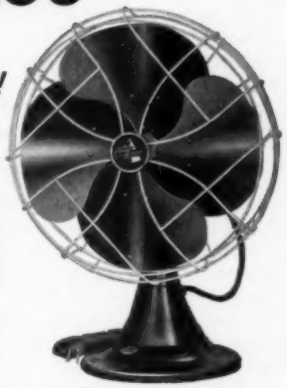

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MOTORS — FANS — APPLIANCES

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$118,953.09 and for additional working capital of $36,046.91. To evidence its need for additional working capital the corporation submitted a cash forecast for the year 1938 which showed by months the estimated receipts and estimated disbursements, and which purported to show that the corporation at December 31, 1938, will have a cash deficit of $50,879.

The order of the commission was adopted by a four-to-one vote with Chairman Milo R. Maltbie and Commissioners George R. Lunn, Neal Brewster and Maurice C. Burritt voting in favor of the order and Commissioner George R. Van Namee voting in the negative and filing a dissenting report, on the grounds the order sets forth the purposes for which the proceeds of the sale of stock and bonds must be used.

The conversions of the Fonda, Fort Plain and Canajoharie exchanges were stated to be in progress. The requirements for those exchanges, it was stated, will exceed by $17,500 the amount earmarked for that purpose in a previous proceeding. In addition, it is planned to convert the Constableville, Lake Pleasant and Eagle Bay exchanges from manual magneto to common battery dial service. The estimated cost of these conversions, according to the company witness, is $53.-514.

The proposed payment of accounts payable and the earmarking of $17,500 for construction purposes, together aggregating $136,453.09, would leave a balance of proceeds of $18,546.91. The report of the commission's examiner, which was approved by a majority of the commission, states that the corporation has satisfactorily demonstrated its need of that sum for cash working capital. The petition stated that the proceeds would be applied to the payment of $118,953.09 of accounts payable which were outstanding on April 30, 1938, and the balance, or $36,046.91, to be used for cash working capital.

The stock, according to the petition, has its basis in $414,963.18 of net additions to fixed capital during the five-year period from January 1, 1933, to December 31, 1937, inclusive, in respect to which amount the company advised it has not heretofore been reimbursed. That amount, it was stated, represents an actual increase in operating property and is not a replacement of or substitution for retired property or other loss chargeable to income.

An exhibit presented in the present case showed that of the reported net expenditures, $309,043.99 represents expenditures which were incurred in the conversion of central offices. Of the company's 36 exchanges, 19 have been converted to common battery dial service during the past five years.

Answers to Traffic Questions on Page 20

1. Operators are not permitted to give out false reports.
2. When the called party reports that he is ready to talk, determine the number from which he is reporting WH, enter it in the called "Telephone numbers" space, and acknowledge the call. Reach the proper TX at the OTC, say, for example: "This is the Springfield TX. Springfield, Mr. J. W. Brown, WH on line at Main 598." Proceed thereafter in accordance with the instruction for handling a WH party report at the terminating toll center.
3. No.
4. Toll operators are not permitted to use an eraser on a toll ticket. If pencils with erasers are supplied, operators are inclined to use them.
5. To the PBX operator and again to the called party.

The principal reason underlying the proposal to issue $155,000 of stock, as against $414,953.18 of alleged uncapitalized expenditures, was stated to be found in part upon a desire to obtain funds for the purposes set forth, in part to take up in stock a part of the capital expenditures against which bonds may not be issued under the corporation's mortgage, and in part to reduce the ratio of bonds to stock in order that compliance may be made with investment laws of the several states and to place the corporation in a better position to effect future financing.

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U. S. High Court Upholds Limiting Patent Use

The United States Supreme Court ruled November 21 that the holder of a patent may restrict the use of the manufactured product to a specified field and exclude it from other uses. The court rejected again by a vote of five to two the plea of the General Talking Pictures Corp. in a patent case which has attracted wide attention because of its bearing on the coming monopoly investigation by the government.

The decision, read by Justice Brandeis, was a distinct defeat for Justice Black. After he had also dissented in the case last May, the court granted a rehearing, an action hailed as a victory for him. But the only jurist who came to his side following the rehearing was Justice Reed, who did not participate in the original decision.

The suit was by Talking Pictures against the Western Electric Co. and the Electrical Research Products, Inc., divisions of the American Telephone & Telegraph Co. It contested a "license" restricting the use of vacuum tube amplifiers solely to broadcast reception.

Justice Brandeis said that the rehearing was granted because of two questions concerning restriction of use of patents after purchase, but that these questions were found to be not relevant. Instead, he stated, the question was whether a restrictive license was legal; and he answered that it was.

Justices Black and Reed insisted that the patent issue was the real one and denounced as monopoly the curtailment of the use of patented articles after their purchase.

Justice Brandeis noted that the patents pool had issued licenses to the American Transformer Co. to make the amplifiers, but stipulated that they be used only for broadcasting and not in motion-picture machines leased to film theaters.

He pointed out that the Transformer company knew the terms of the license, but nevertheless made the amplifiers for the prohibited use and sold them to the Pictures corporation. The Transformer company, he added, was "guilty of infringement," and Pictures corporation, knowing the circumstances, was "also an infringer."

"That a restrictive license is legal seems clear," Justice Brandeis declared. "The practice of granting licenses for a restricted use is an old one. As the restriction was legal and the amplifiers were made and sold outside the scope of the license, the effect is precisely the same as if no license whatsoever had been granted to the Transformer company. And as Pictures corporation knew the facts, it is in no better position than if it had manufactured the amplifiers itself without a license."

Justices Black and Reed asserted that for a century the Supreme Court had held that when a patented article "passes into the hands of a purchaser, it is no longer within the limits of monopoly." Once, they added, the court departed from the rule, but corrected itself after five years. The present ruling, they held, was the second departure "from the traditional interpretation of the patent laws."

"Neither stipulation nor practice,"

they said, "could justify extension of patent monopoly beyond the limits of legality fixed by Congress and recognized by this court for over three-quarters of a century."

Justice Roberts did not participate in the decision, nor that of May, when Justices Reed and Cardozo also were absent. The first decision was five to one.

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Summary of Commission Rulings and Hearings

Federal Communications Commission, Washington, D. C.

January 31: Hearing concerning acquisition by the Wisconsin Telephone Co. of the properties of the Winnebago County Telephone Co. from Edwin G. Beardmore.

Florida Railroad Commission

December 12: The commission dismissed without prejudice the petition of a group of citizens of Lake Worth, headed by W. R. Keefe, for the abolition of toll charges by the Southern Bell Telephone & Telegraph Co. between Lake Worth and West Palm Beach, to give the petitioners an opportunity to file a new petition, after making preparations to properly present their case.

Georgia Public Service Commission

December 14: Order issued authorizing the Southern Bell Telephone & Telegraph Co. to make improvements in equipment in six cities—Jonesboro, Jackson, Leary, Madison, Eatonton and Douglasville—under an agreement with subscribers that the rates be increased 25 cents per month.

Michigan Public Utilities Commission

November 15: Approval granted the Stanwood Telephone Co. and the Kaleva Telephone Exchange for filing tariffs No. 1.

December 1: Approval granted the Saline Telephone Co. and the Lake Ann & Oviatt Telephone Co. for filing tariff schedules No. 1.

December 15: Order issued approving filing of No. 1 of the Prescott Telephone Co.

December 15: Order issued approving filing of tariffs Nos. 1-10, inclusive, of the Tri-County Telephone Co.

December 16: Michigan Bell Telephone Co. authorized to enlarge the Benton Harbor base rate area.

December 20: Approval granted the Davison Telephone Co. for filing tariff No. 1.

Minnesota Railroad & Warehouse Commission

December 19: The commission approved the new schedules of exchange and rural rates filed by the Nicollet County Telephone & Telegraph Co. and applicable to the following communities: St. Peter, Cleveland, Gaylord, Gibbon, Lafayette, Nicollet and New Sweden. The commission found present rates unreasonably low and found the new schedules applied for to be reasonable and justified. New toll tariffs were also accepted for filing.

Nebraska State Railway Commission

December 22: Approval granted application of the Eustis Telephone Co. for authority to put into effect a rate for joint telephone service.

December 22: Application of the Hamilton County Farmers Telephone Association, of Aurora, for authority to reinstate service connection charges that have been under suspension since 1931, found reasonable and authority issued to put the schedule into effect January 1, 1939.

December 22: Approval granted application of the Lincoln Telephone & Telegraph Co. for authority to eliminate added exchange service to Burr Oak, Kans., for switching subscribers from its local exchange tariff at Superior exchange.

New York Public Service Commission

January 6: Hearing in Albany before Examiner W. T. Wilkinson on petition of the Chenango & Unadilla Telephone Corp. for authority to issue $50,000 principal amount of first and general mortgage bonds.

January 7: Continued hearing on complaints against "short haul" toll charges in the state involving the New York Telephone Co., the Rochester Telephone Corp. and other upstate telephone companies.

January 17: Rehearing in New York City on commission's order directing hotels to reduce service charges for local and long distance calls. However, the reductions became effective January 1, as had been previously ordered.

The hearing will be limited to the receipt of evidence that was not available at the last hearing in the case.

Pennsylvania Public Utility Commission

January 10: Hearing in Philadelphia on the application of the Bell Telephone Co. of Pennsylvania for permission to increase its rates for "foreign exchange service." This is a connection from a suburban telephone to an exchange in an adjoining community instead of to the exchange in the community in which the subscriber lives.

January 18: Hearing at Pittsburgh on the proposal of the Bell Telephone Co. of Pennsylvania to change its basis of charges to subscribers in the suburban areas.

Wisconsin Public Service Commission

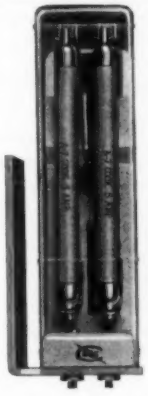
December 21: Authority was granted the Annaton-Preston Telephone Co. which serves about 440 subscribers near Montfort, Stitzer, Livingston, Lancaster, and Fennimore, Grant county, to increase rural telephone rates to $4.50 net per quarter.

New rates will be placed in effect as lines are improved, about 70 subscribers being affected each year. When all increases have been made, company revenues will be about $840 a year more than now.

December 21: Authority granted the Grant County Telephone Co., Livingston to increase rates. By charging its 81 rural subscribers $4.50 net per month, the company will increase its revenues $240 a year.

January 5: Hearing at the court house in Durand in the case of August Wald et al vs. the Nelson Telephone Co., in regard to inadequate service.

January 6: Hearing in Madison to investigate a complaint of R. T. Wiswell that the North-West Telephone Co. has refused to extend service to his residence near Spring Prairie, Walworth county.



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Foreign Telephone Developments During 1938

(*Continued from page* 12)

The Postmaster General announced in September that the sum of £2,500,000 ($12,500,000) would be spent this coming year on the development of communications in Scotland. Most of the money will be used to convert the systems from manual to automatic. This would include the conversion of 90,000 telephones and the erection of 26 new buildings in Glasgow alone.

The Postmaster General, in discussing television costs, stated that the capital expenditure incurred on the television service up to September 30, 1938, less depreciation written off, was approximately £126,000 ($630,000), and that the revenue expenditure up to that date, including depreciation and program, engineering and staff costs, was approximately £660,000 ($3,300,000).

Expansion of Automatic Switching Equipment

Several foreign countries are continuing their program of conversion to Strowger automatic at increased speed. Telephone companies and administrations in Australia, Venezuela and Brazil especially have increased their purchases of Strowger automatic equipment.

The Australian Post Office placed orders on Automatic Electric Co., Chicago, this year for the first type 2000 (BPO) Strowger equipment to be made in the United States. Shipment of 2,200 lines will be made early in 1939.

Orders have been placed with the Phillips Co., Brockville, Ontario, Can., for an initial Strowger automatic installation for the city of Vancouver, British Columbia. The initial installation will be cut into service this year.

Automatique Electrique de Belgique, S. A., Antwerp affiliate of Automatic Electric Co., Chicago, has received orders from the Belgian Post Office for approximately 10,000 lines of Strowger automatic equipment. This equipment will be made in the Antwerp factory and installed in six exchanges in the Mons area.

Autelco Mediterranea, S. A. T. A. P., the Italian affiliate of Associated Telephone & Telegraph Co., has acquired telephone manufacturing facilities in Milan and is steadily expanding its program for the production of telephone apparatus of various types, including Strowger automatic equipment.

The Ministry of Communications of Lithuania in the summer of 1938 contracted for the installation of 2,500 additional lines at the automatic central office at Kaunas. The total cost will be £21,141 ($102,000). At present the capacity of the Kaunas exchange is 7,400 lines.

A decree of the Portugal government authorized the Department of Posts and Telegraphs to make a contract for the installation of automatic telephone equipment throughout the country. The contract calls for an expenditure of 71,865,000 esudos ($3,062,000) and the equipment will be of the Strowger type.

The development of the telephone networks of the United River Plate Telephone Co., Ltd. (Argentina), and of the Chile Telephone Co., both of which are comprised in the International Telephone group of companies, necessitated provision during the year of over 30,000 lines of step-by-step equipment for new exchanges and other purposes.

The largest rotary network—the Paris city area—was converted in 1938 to 100 per cent automatic operation. Two rotary exchanges (5,400 lines) also were placed in service in the Paris suburban area, bringing the percentage of automatic operation to 70 per cent. There still remain six offices (22,200 lines) to be cut into service, all of which are under construction, to complete this stage of the conversion to automatic.

Transformation of the Paris regional area to automatic operation was started in 1938. Three offices (6,200 lines) of the "center" type and one satellite (50 lines) were placed in service, while one "center" type (800 lines), three "sub-center" type (1,900 lines) and six satellite (590 lines) offices are in process of construction.

Further development of the Oslo (Norway) suburban and regional networks took place with the cut-over of the 2,600-line Stabekk exchange and 13 exchanges with 4,910 lines in the Drammen area.

The cutting into service of a new automatic exchange last April virtually completed the conversion of the telephone system in the Stockholm, Sweden, area to the dial type of operation. The system comprises seven exchanges serving about 136,000 subscribers, with an ultimate capacity of 180,000 lines. Conversion to the dial system was begun during 1921 and the cost of the project to date is about 55,000,000 kroner ($14,025,000). Among the unique features of the exchange recently opened to service are 17 bombproof rooms in its cellar.

The Viipuri telephone system in Finland is to be made automatic, the contract having been placed during the autumn. The Telephone Co. of Abo also placed a contract for the installation of an 8,000-line automatic central office in Abo.

Increase in Use of Communications Facilities

The increase in the number of radiotelephone calls in Finland during the past three years, amounting to 2,000 per annum, has made necessary the installation of new apparatus at Helsinki, Kotka and Vasa.

A census of telephone subscribers in Latvia taken on August 1 showed that the number of installations totaled 72,400 in a population of approximately 2,000,000. By the same date the Latvian Post Office had received over 2,000 applications from new subscribers, of which 75 per cent were among the rural population.

International telephone calls in Rumania during July were stationary and below the figure for last year by 9.1 per cent, thus maintaining the general trend for the first six months of 1938 with the exception of the month of May. During August, however, the number of international calls increased 43.7 per cent compared with the previous August and 62.9 per cent compared with the average for the preceding months of 1938. This gain is explained by international events in August and the presence abroad of a greater number of Rumanians than during all the preceding months of the year.

Toll calls have increased steadily since last April and in July exceeded by 18.9 per cent and in August by 17.1 per cent the level registered in 1937. Intense local telephone traffic is attributed to an increase in the number of local stations.

Miscellaneous Long Distance Lines

A contract for the manufacture of a submarine telephone cable between Tripoli and Sicily has been placed with an Italian company. The cable, which will be 386 nautical miles in length, will run from Tripoli to the islands of Lampedusa and Panteleria, and thence to Empedocle on the south coast of Sicily. At the latter place an

amplifying station will connect the cable to the land system of Caltanisetta. The Italian government has appropriated 40,000,000 lire ($2,100,000) for the cable, but other appropriations may be necessary.

Construction of new telephone lines between Belgrade, Jugoslavia, and Athens, and between Belgrade and the new German frontier was completed the middle of 1938. Three lines between Belgrade and Bucharest were ready for service in September, and three lines between Belgrade and Szegedin providing direct connection with Budapest, Prague and Berlin, were ready for service in November. Construction of three new lines between Zagreb and Trieste was also commenced. All of these lines are equipped with high-frequency installations.

The new telephone and telegraph line being built by the Commissariat for Communications of the U.S.S.R. from Moscow to Khabarovsk near the border of Manchukuo will be 8,678 km. (about 5,300 miles) in length, the longest line in the world. The first stage, Moscow to Irkutsk, 5,430 km. in length, was completed before the end of July, together with the necessary amplifying stations.

It will be possible to transmit simultaneously 3 telephone conversations, 19 cablegrams and 1 telephoto over one pair of wires.

In the Union of South Africa, the Post Office is proceeding with the laying of an underground telephone cable between Johannesburg and Springs. The new cable contains 356 pairs of wires and will eventually be extended to Heidelberg and Nigel.

Construction of the automatic telephone exchange at Pretoria is continuing. It is scheduled to be cut into service within a year and a half.

Expansion of Facilities in Various Countries

The telephone administration of Siam was reported during 1938 to have under consideration a plan for conversion of Siam's entire telephone service to automatic operation. Automatic exchanges at Wat Lieb and Bangrak were cut into service early in 1938.

Considerable progress was made by the Avalon Telephone Co. in Newfoundland with the erection of transmitting and receiving stations for its international radiotelephone service. Because of exhaustive tests which were necessary before the service could be placed in operation, it was late in the year before the complete hookup was finished.

Work commenced the middle of September on a new building for the Communications Department in Guatemala City. The new construction will be in two sections, connected with an over-head passage over the street. The buildings are to be two stories high. The government has engaged a telephone expert for a period of three years to supervise the installation and maintenance of automatic equipment.

On October 15, 1938, the president of Chile officially inaugurated a new telephone circuit just completed between the cities of Santiago and La Serena. This is an important extension of the telephone network in Chile and puts the capital in touch with the more important towns of the north (Coquimbo, La Serena, Illapel, Combarbala, Salamanca, etc.). Prior to the construction of this line, communication between Santiago and towns to the north was by post or telegraph.

The new telephone extension is part of the system operated by the Cia. de Telefonos de Santiago. The work, originally planned to be completed this month, was speeded up at the request of the government. It represents an addition of approximately 406 km. of line and a cost of approximately 3,700,000 paper pesos (U. S., $148,000).

The government of India created a central fund in April, 1938, to finance various schemes to establish telephone communication between all parts of India. An estimate of Rs. 25,000,000 (Rupee equals about U. S., $0.355) has been sanctioned for new telephone works during the next five years, but no special program has been drawn up. The current financial year's development is estimated to cost Rs. 4,000,000. This includes: (1) A multi-channel carrier telegraph and telephone system between Delhi and Calcutta; (2) The Bombay Karachi carrier system, to be in operation in September, 1939; (3) Additional carrier systems to be installed between Bombay and Ahmedabad; (4) A new carrier system between Madras and Trichinopoly; (5) Expansion of the existing telephone systems in Delhi and Lahore.

(6) Laying new cable for the expansion of the system in reconstructed Quetta, and removal of the existing exchange to a new building; (7) A new exchange at Baula; (8) Cables for departmental exchanges at Marmad, Malegaon and Pandarpur; and (9) A new automatic exchange at Ranigang.

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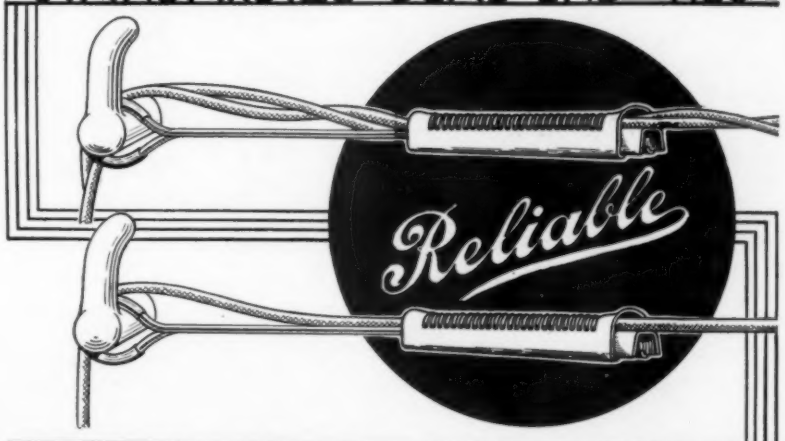

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Representatives of Kellogg Switchboard & Supply Co.

RAY JONES, manager of the Front Royal, Va., group of exchanges of the Central Electric & Telephone Co.

THE CENTRAL Electric & Telephone Co. of Sioux City, Iowa, recently completed a comprehensive rebuilding program and the installation of Kellogg comon battery switchboards and Kellogg Masterphones in two of its former magneto exchanges. Front Royal, Va.—one of the exchanges—has new instruments in every town installation; Coon Rapids, Icwa, the other exchange, has new instruments in every location except on the rural magneto lines. This complete modernization program has already paid dividends in increased user satisfaction and an important subcriber growth.

Coon Rapids, referred to by its citizens as "The Best Small City in Iowa," now has a completely new telephone system. The old magneto plant was replaced throughout: new exchange buildings, new central office equipment, new subscribers' instruments, and new outside plant.

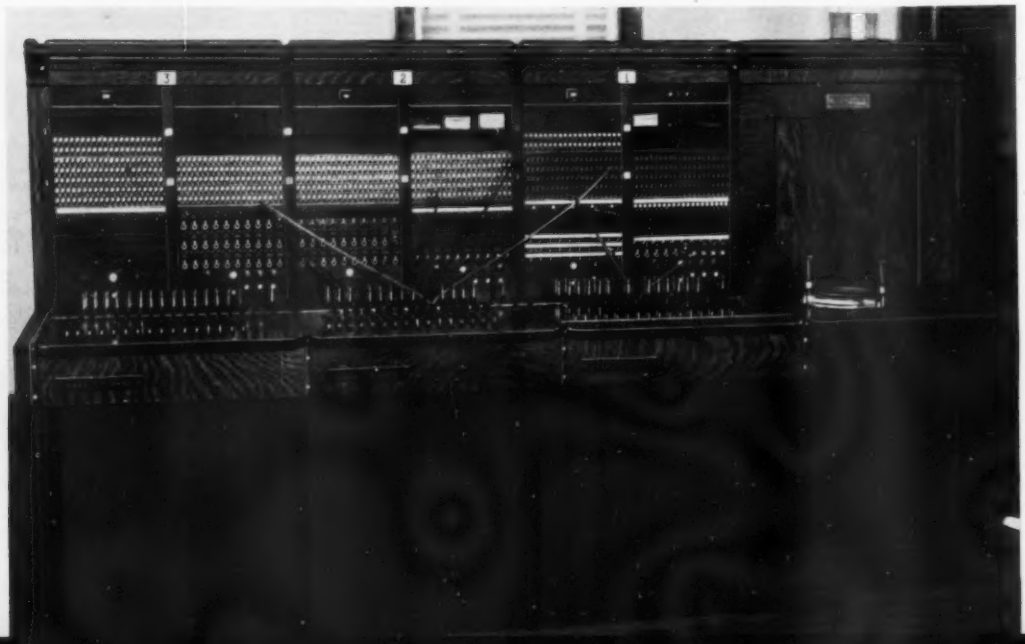
The new Kellogg switchboard consists of a two-position, non-multiple, common battery unit with an ultimate capacity of 400 lines. It has 300 lines equipped, 6 toll lines, and 35 rural lines. At the time of the cutover, 277 local stations, 36 company-owned rural and 206 connecting stations were placed in service—and every location, except rural magneto, was supplied with a desk set or a wall Masterphone.

Coon Rapids' original telephone system dates back to 1901. The company changed hands several times during its early existence, but steadily expanded and improved its service. In 1937 it was sold to the present company. Alf Hetland, local manager, is to be congratulated on the results of his company's improvements, and on the vote

Attractive exchange building at Coon Rapids, Iowa.

Neat exchange building at Front Royal, Va.

(Below) Three-position 6-800 Masterbuilt switchboard similar to the one recently installed at Front Royal, Va.



This 900 type Combination Masterphone or the 9900 type wall Masterphone was installed in every town station at Front Royal, Va.

of confidence accorded him and his force as indicated by the enthusiasm of the Coon Rapids community in approving increased rates for this higher type of service.

All in all, the citizens have ample grounds for being proud of the fine work the telephone company has done. Needless to say, the improved facilities are doing credit to the city and are a long step forward in the march of progress and expansion that is keeping Coon Rapids in step with its own slogan, "The Best Small City in Iowa."

Front Royal Chooses Masterbuilt Equipment

The Front Royal, Va., exchange, owned by the Virginia Telephone & Telegraph Co., a subsidiary of The Central Electric & Telephone Co., recently completed the installation of a complete new telephone plant. Like Coon Rapids, Front Royal also obsoleted a magneto system and installed modern common battery equipment throughout. Outside plant, exchange building, central office equipment and telephones—all have been replaced with new equipment. The new switchboard is a 6-800, three-position Kellogg common battery Masterbuilt unit.

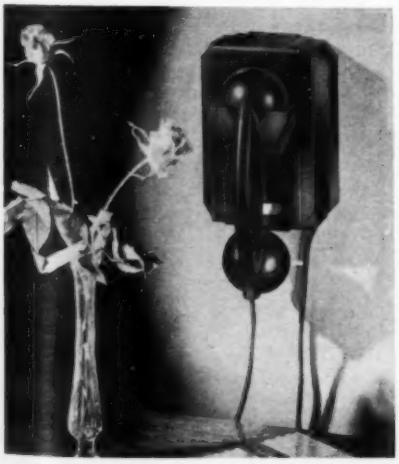
At the time of the installation, 874 stations were in operation. Each of the town stations was replaced with a new Kellogg combination Masterphone desk set or a wall Masterphone. There's no more cranking, and no desk set boxes on the walls of subscriber's premises in Front Royal.

Front Royal is located at the entrance to the famous Shenandoah National Park. The rich Shenandoah and Page valleys' farming areas assure the town a good-sized agricutural income. In addition, Front Royal is attracting large industries which will materially increase its income. Tourist traffic, too, is increasing as the many nearby beauty spots, national parks, and resort regions are growing in popularity.

It is just for such rapid growths as Front Royal is enjoying that the modern equipment installed, was designed. When expansion requires additional lines, positions, or changes in positional equipment, these requirements can be met practically over night.

It is not unreasonable in a few years to expect Front Royal's population to go up to 15,000 from its present 4,500. With this tremendous future possibility, it looks as if the company's other exchanges are going to find it "hard going" to beat Front Royal in the organization's regular subscriber sales campaign.

Fenton Collins, local manager, and Ray Jones, manager of the Front Royal group of exchanges, deserve due credit for the part they played in bringing their subscribers this modern telephone service which will prove an invaluable aid to the city's growth and progress for many years.



Subscribers at Coon Rapids, Iowa, were pleased with the attractive 9900 type wall Masterphones installed for them.

▼ ▼

Finds Money In Discarded Telephone Directory

Fifteen $100 bills recovered after a three-day search through 75,000 discarded telephone directories were restored recently to Richard V. Harkins, at Boston, Mass.

Mr. Harkins secreted the bills between the pages of his telephone book on Sunday for safekeeping. Next day the book was picked up by the New England Telephone & Telegraph Co. and replaced with a new one. When Harkins discovered the loss he began a systematic search of 100,000 discarded telephone books.

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The Manufacturers' Department

Cook Electric Co. Issues Calendar

An unusually distinctive 1939 wall calendar has been prepared by Cook Electric Co. of Chicago and is being distributed to telephone exchanges throughout the country. It is a 12-sheet calendar. Each sheet, 17 ins. by 11 ins. in size, shows three calendar months, the current, preceding and following months.

The calendar is printed in six colors and black. Each sheet has a heavy color border of smart modern design and small illustrations and brief descriptions of the principal Cook telephone and protection products.

Featured in the calendar is the new Cook trade mark, a symbol of Cook protection.

▼ ▼

New and Compact Calculagraph Now Available

An elapsed time recorder of new design has been placed upon the market by the Calculagraph Co., of New York City. As shown in the illustration on this page, it is rectangular in shape, measuring 3⅜ ins. by 7½ ins. on the surface. The case itself is only 6¼ ins.

Its size and shape make it possible to use this calculagraph in places inconvenient to use the larger models in general use. It is especially convenient for use on certain types of local switchboards and on teletypewriter boards.

The new calculagraph prints to a second with the precision of the larger model 30, its manufacturer asserts. Furthermore, there is on this model no objectionable jumping device, as the a.m. and p.m. indications are eliminated. This is made possible by the new 24-hour time-of-day dial adopted about two years ago.

The new recorder has a sweep second hand which permits the operator to tell accurately at a glance when a call is approaching the end of the initial period. This is especially desirable on positions handling coin-box calls when every calling party must be notified when approaching the limit of the initial talking period.

A clear, unobstructed view is at all times afforded of the second hand and the clock face.

The new calculagraph, it is stated, is driven by a reliable and powerful self-starting, synchronous motor, consuming less than two volt-amperes. The motor remains in step over a wide voltage fluctuation.

The machine itself is finished in a black copper oxide, while the nickel silver ticket plate has a soft brushed finish. The black bakelite handles are neat in appearance and their design permits of a quick grasp for printing. In fact, it is claimed that less effort is required for printing with this model calculagraph.

New elapsed time recorder designed by Calculagraph Co.

Additional information concerning this new elapsed time recorder may be obtained by addressing the Calculagraph Co., 50 Church St., New York.

▼ ▼

Telechronometer Subject of Engineering Thesis

The telechronometer—an elapsed time metering device installed on the subscriber's premises—which was in actual use for eight years in the Everett, Wash., exchange of the Puget Sound Telephone Co. (now the West Coast Telephone Co.) was the subject of a thesis submitted for the degree of electrical engineer at the University of Washington by Lyall Baker Cochran.

Mr. Cochran reviews the history of the invention of the telephone and devices for metering service. Many applications were filed in the United States patent office covering proposed systems for measuring the number of outgoing messages, the cumulative total elapsed time of outgoing service, or both. All depended upon locally-supplied energy for their operation.

Early in the 20th century a number of metering systems had been invented and patented but no satisfactory system of operation had been devised. In 1908 the Rochester (N. Y.) Telephone Co. became interested in the matter and Garrison Babcock, telephone engineer, then of Rochester, was retained at the suggestion of C. M. Beattie to investigate the possibility of measuring service in units of time.

As a result, Mr. Babcock produced an improved type of meter differing radically from those previously designed and using current supplied from the central office. Patent No. 912,268, issued February 9, 1909, to Mr. Babcock, became the first of a group of patents known as the Beattie-Babcock patents which laid the foundation for the Telechronometer system of metering service.

Application of the equipment to existing telephone circuits was first made in the laboratories of the North Electric Co., Galion, Ohio. After the close of the world war W. N. Winter, president of the Puget Sound Telephone Co., negotiated with Mr. Babcock for the installation of the Telechronometer system in Everett.

Permission was secured from the Washington Public Service Commission in 1920 to equip a limited number of lines with meters and to install the necessary actuating equipment. The following year the company was authorized to install the equipment throughout its Everett area. The installation was completed early in 1922.

Many pages of Mr. Cochran's thesis are devoted to a detailed description of the telechronometer equipment, its operation and application, with the aid of numerous clear-cut diagrams, charts and photographs. (Application of the telechronometer system was described at length in an article by Coburn Allen, commercial superintendent of the Puget Sound Telephone Co., in a feature article published in TELEPHONY of April 23, 1927.)

Referring to the report of the Washington Public Service Commission, after an investigation of the telechronometer system as installed in Everett, Mr. Cochran states in his thesis:

"Detailed studies of the telechronometer equipment, appearing for the first time in this report, demonstrate conclusively its ability accurately to perform the functions of measuring telephone service in units of time. Independent studies previously made by engineers representing the Washington Department of Public Works resulted in a like decision regarding the accuracy and dependability of the equipment."

The writer found that the results of the application of the telechronometer were far-reaching and, apparently, of mutual benefit to the average subscriber, the operating company and

the community. However, some measure of dissatisfaction was apparent among the users, very largely among those heavier users of service who experienced increased billings incident with meter installation. This active minority was responsible for the review of metered operation conducted by the Washington Department of Public Works in 1929 and 1930.

The findings of fact contained in the order of July 1, 1930, ordering the disconnection of the telechronometer equipment, Mr. Cochran points out in his thesis, were issued by a board composed of three members, none of whom had heard any of the evidence presented during the actual hearings 15 months previously.

The following report was made by the board's own engineers and accountants on the efficiency and accuracy of the metering device:

"The theory of measured telephone service is sound and the advantages from this standpoint make it desirable that the development be given a thorough trial to ascertain the practicability of the device used in measuring such service. In practice, the telephone meters should incur enough saving in plant fixed charges to more than offset any additional expense caused by its installation.

The holding time of the utility's equipment has been considerably reduced and at the same time the operator's holding time has been lessened. Service, as a whole, has been improved.

A large majority of both business and residential subscribers have had decreased billings during the period of measured service . . . The majority of the few residential subscribers interviewed expressed a desire that the meters be continued in service, while in the business class a majority of those having higher bills desire to have the meters removed.

In all classes of service, the majority of subscribers believed that the meters were functioning correctly, and that the service was better, their bills had been reduced, and that their social privileges had not been curtailed to any great extent."

Mr. Cochran also found, from the report of the Washington Department of Public Works, that the telephone company earned an annual return of 8 per cent during the period in which the telechronometers were in service.

Incorporated in the thesis are the supplemental findings of fact issued last year by the Washington Department of Public Service in cause No. FH-5896 in the case of the patrons of the Puget Sound Telephone Co., Everett, Wash., vs. the West Coast Telephone Co., striking from its findings of fact dated July 1, 1930, the following sentence:

"The department is of the opinion and finds that the telechronometer system is improper, inefficient and unsuitable for use on the Everett telephone exchange."

In its supplemental order, the department states:

"The department has re-examined the record in this proceeding and can find no basis therein for the findings of July 1, 1930—that the telechronometer system is inefficient. Indeed, the department's own engineers investigated the matter before the order of July, 1930, and reported that the system was efficient and feasible.

"Furthermore, the West Coast Telephone Co., which maintained a neutral attitude during the hearing, has written the department to the effect that as a service metering device the telechronometer system in its operations, in connection with the Everett operations, was satisfactory."

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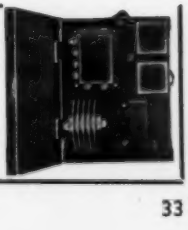
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